**ISTANBUL TECHNICAL UNIVERSITY ★ GRADUATE SCHOOL OF SCIENCE ENGINEERING AND TECHNOLOGY**

# A PARAMETRICAL RELIABILITY ANALYSIS PROPOSAL FOR ARCHITECTURAL REPRESENTATION

**M.Sc. THESIS**

**Saman TINATI**

**Department of Architecture**

**Architectural Design Programme**

**JULY 2015**

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**İSTANBUL TEKNİK ÜNİVERSİTESİ ★ FEN BİLİMLERİ ENSTİTÜSÜ**

# MİMARİ SUNUM İÇİN PARAMETRİK GUVENILIRLIK ANALİZI ÖNERİSİ

**YÜKSEK LİSANS TEZİ**

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**Saman TINATI**, a **M.Sc.** student of ITU **Graduate School of Science Engineering and Technology** student ID **502121135**, successfully defended the **thesis** entitled "**A PARAMETRICAL RELIABILITY ANALYSIS PROPOSAL FOR ARCHITECTURAL REPRESENTATION**", which he prepared after fulfilling the requirements specified in the associated legislations, before the jury whose signatures are below.

| | | |
|---|---|---|
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**Date of Submission : 03 July 2015**
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***To my parents,***

## FOREWORD

This work is the consequence of my personal interests about motion pictures and animation and I would like to express my deep apperciation and thanks to my advisor Assoc. Dr. Proff. Yuksel Demir whom which this thesis wouldn't be possible without his guidance and moral support. I would also like to thank my parents for their ever lasting faith in me. My grandmother who had encouraged me in countless ways and to Farzan Tinati for being my greatest friend and supporter throughout this thesis.

May 2015

Saman TINATI
(Architect)

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**ABBREVIATIONS**

**2D** **:** 2 Dimentional
**3D** **:** 3 Dimentional
**FX** **:** Effects
**GYO** **:** Gayrimenkul Yatırım Ortaklıkları
**HDR** **:** High dynamic range
**POV** **:** Point of view
**VFX** **:** Visual Effects

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## A PARAMETRICAL RELIABILITY ANALYSIS PROPOSAL FOR ARCHITECTURAL REPRESENTATION

## SUMMARY

Architecture has always been influenced by other mediums and fields. To present a building it is required to apply these other fields in the sector. Presenting is a very important part of an architects professional career and these presentations develop alongside the development of architecture itself. One of these mediums which has been widespread in recent years thanks to rapid technology developments is 3D renders created by simulation softwares. Thousands of still image 3D simulations are set side by side and create the illusion of motion; in this case animation. Animations can give us sufficient information about a building, its features and its context in a very short amount of time even prior to the buildings construction.

Some architecture firms do their own animations but due to lack of experience and utilities for this profession, they might give the responsibility to animators or advertising agencies.

But how reliable are these animations, and to what extent do the animations actually match with the reality is a question not to be neglected. Some simulations are inadvertently flawed and mismatched with the actual building and sometimes they are exploited by the animators deliberately. The clients might be taken advantage of, for sale purposes only.

To answer this question the animation of 10 high-rise buildings which have been completed from the city of Istanbul have been selected to be compared with the actual buildings as they appear, in fields that structure an animation such as Camera, Lights, Layout and modelling, Texture, Visual effects, 2D Visual effects and Color correction. Multiple sub- factors evaluate the mentioned fields in the comparison. The amount of deceiving factors of the categories, and the manipulation done in each building is calculated and compared.

Some of the cliché deceptions are identified which can be seen in the majority of animations such as concealing the buildings surroundings, beams of car lights taken in high exposure photos at night, extravagant inexistent vegetation, scenes of sunset and perfect vanilla skies as the background condition which the building is presented.

In general except a few very rare exceptions such as the merter platform animation, a professional firm would always try to show its building in the most perfect and surreal conditions, a sense of greed might be putting this to an extreme to which the results of the study showed buildings such as Four winds Istanbul, Onalti dokuz and The mall of Istanbul had the most deceiving animations. the most deceiving points were related to those of the camera. For this purpose human scale, flexable and interractive applications such as walkthrough cyber-spaces, which some building websites are already using are suggested. No matter what, a considerable amount of manipulation is done by an animator to show its effort, but lowering these factors could be benificial for the client and reduce criticism of buildings which are constructed solely because of perfectly manipulating the spectators.

# MİMARİ SUNUM İÇİN PARAMETRİK GUVENILIRLIK ANALİZI ÖNERİSİ

## ÖZET

Sunum bir mimarın profesyonel kariyerindeki en önemli parçalarındandır. Bir binanın mimarisinde sunum hazırlamak için çeşitli metodlar vardır ve bu metodlar araçlar ve alanlar sayesinde etkilenmektedirler, ama bu sunumlar mimarlık ile beraber aynı anda gelişmektedirler. Bu araçların bir tanesi de geçtiğimiz zamanlarda yaygın olarak kullandığımız 3D renders simülasyon yazılımıdır. Bu teknolojide hareketsiz ve sabit olan 3 boyutlu görüntüleri bir araya getirerek oluşturulan bir hareket yanılsamasıdır; yani kabaca animasyon. Animasyon bizlere bir bina hakkında, onun özellikleri ve kaynağı hakkında kısa bir süre zarfında, yapımı tamamlanmadan önce bile önemli bilgiler verir.

Bazı mimarlık şirketleri çizilen animasyonları kendileri yapmaktayken, diğerleri işin zorluğu ve tecrübesizlikte kaynaklan nedenlerden ötürü sorumluluğu, animasyon çizimlerini, animasyon firmalarına ve reklam ajanslarına bırakır.

Bunların dışında bu animasyonlar gerçeği yansıtmakta ne ölçüde güvenilir? Bu sorulması gereken bir sorudur. Bazı simülasyonlar yanlışlıkla gerçek bina ile uyumsuz olur ve bazen animatör kasten bunu yapmaktadır. Bazen bu animasyonlar yapıları abartır ve bazen de kendi olduğunda daha alt seviyede gösterebilir. Mimarlar bakış açılarını değiştirmek için veya aşırı grafik işletmesi ile anlatılan fikir detayların arasında kaybolabilir ve unutulur. Yapının şehre, çevreye ve muhit ile olan ilişkisi ihmal edilir, ve gözlemcinin perspektifini tamamen değiştirir. Mimar ve tasarımcıların imajı gereğinden fazla vurgulanmasının altında pek çok sebep yatabilir, en yaygın neden müşterinin memnun edilmesi ve büyük miktarda satış yapmaktır.

Bu tezde amaç olarak uyumsuzluk ve düzensizliği, gerçek ve simülasyon dünyasında incelenmesini planlıyoruz. Daha dar bir bakış açısından hedef olarak simülasyonların ana kriterlerin (Kamera , Işıklar, Kontrast, görsel efektler, renk düzenleyici vs.) yüzde kaçı gerçek dünyayla uyumlu olur. Ayrıca bu önceden hazırlanmış animasyon ve gerçek binanın uyumluluğun nedenlerin incelemektir.

Bu sorulara cevap vermek için, İstanbul içindeki çeşitli ve tartışmalı gökdelenleri ve ya 50,000 metre kareden fazla binalar örnek olarak animasyonları yapıldı ve bu animasyonlar gerçeği ne kadar yansıttığını karşılaştırıldı. Bu binalar hepsi bitmiş durumunda projeler ve İstanbul icinde son 20 yılda yapılmışlar. Fonksiyon olarak hepsi ticari ya da konut kategorisinde yerleşiyorlar. Değerlendirme için 3 boyutlu modelling bilgisayar yazılımları ve sade animasyon esaslarına bağlı olur. Kamera, ışıklandırma, bazı düzenlemeler ve modelleme, görsel efektler, 2 boyutlu görsel efektler ve renk düzenleyici kullanıldı. Bazı alt faktörler vurgulanan kıyaslamaları değerlendirir. Her bina için yapılan manipülasyonlar ve düzenlemeler kıyaslanması hesaplandı.

Bazı klişe ayartmalar çoğu animasyonlar da görülebileceğe üzere tespit edildi ve bunlar, binaların çevresini örtbas etmek gibi, gece yanan araba ışıkları kirişleri gibi, abartı var olmayan yeşillikler gibi, gün batimi ve son olarak mükemmel vanilya gökyüzü kullanarak binanın arka planının sunulması gibi.

hiyerarşisine dayalı olarak farklı türde sapmalar vardı. Estetik ve sunma stratejileri sapmaları seyircileri karar verme güçlerini engel koyabilir, fakat yapı sektörüne bağlı sapmalar seyircilere daha da yanlış ve hatalı bilgilere zarar verebilir.

Bazı faktörler niteliksel olarak daha çok duyarlı olur örnek olarak difüzyon efekti Onaltı Dokuz rezidansında, Akasya avm'nin animasyonun karşılaştırıldığında daha çok etkili ve uzun sure gözükmüştür bir diğer örnek Zorlu Center binasında doğal gün ışıkla animasyonda kullanılan ışığın uyumunun duyarlılığı ve ayni durumda gölgelerin birleşmesi. Diğer yandan sapmada bazı faktörlerin ve özelliklerin ihmal edilmesi başkalarına gore önemli sayılır, mesela Fourwinds İstanbulda binanın bağlamın örnek alabiliriz.

Genel olarak bazı çok nadir rastlanan animasyon firmaları dışında, profesyonel bir firma her zaman yapmak üzere olduğu binalarını mükemmel ve gerçeküstü koşullarla göstermeye çalışır, açgözlülük hissi her zaman bu durumu tetikler ve yapılan araştırmada, Fourwind, Onaltı Dokuz ve The mall of Istanbul en aldatıcı animasyonları uygulamışlar. En aldatıcı noktaları kamera ile çekilen görüntülerdir. Bu amaç için, insan ölçeği, esnek ve interaktif uygulamaları sanal alanlarda sürdürmesi

önerilmektedir. Bunun örneği bazı binaların web sitelerinde de görmek mümkündür. Ne olursa olsun, bir animator tarafından ne kadar manipülasyon yapılması onun çabasını ve emeğini gösteriyorsa bile ve binayı ne kadar güzel görünmesini sağlıyorsa bile, bu aldatıcı faktörleri biraz düşürülmesi, seyirciler için daha yararlı olabilir ve sırf demagoji için yapılan eleştirileri azaltabilir.

Çalışma mimari animasyonlar analiz etmek için bütünsel ve genel bir fikir vermesine rağmen daha ayrıntılı ve derinlemesine bir analiz geliştirebilir ki sapma seviyesi daha anlaşılabilir ve sırf mimari simülasyon yazılımların da odaklanabilir.

## 1. INTRODUCTION

Architecture has always been influenced by other visual mediums to assist their presentations. through drawings, capturing 3-dimensionality through scaled modeling or illustrating realistic materials through computer generated models etc. There are several reasons why the use of these mediums have been bought into the field. It seems uneconomical and unfeasible to test a structure on full scale. One reason could be the difficulty in imagining more complex structures in their entirety. Since the very early days mediums in fine art and other fields were always involved in presenting architects design processes. In recent years this influence has been increased by new technologies. One of the most important methods of presenting architecture is through visual images. Images are the most interact and fluid way of communicating. 3D simulations and virtual renders. Hundreds and thousands of still image frames pass in a timeline so that our mind makes sense of it as an illusion of motion. Scenes of form and space and narratives makes animation a very sensible form of presenting. The extensive use of computer graphics makes it essential for architects to question and interpret the media they utilize. Creating these simulations requires a lot of time, suitable computing systems and knowledge. Lack of knowledge or talent in visual presenting is a frequent problem being faced by architects. This leads to a large group of architects willing to assign professional simulators and to hire advertising agencies although many developments have been made in the field of virtual simulation, unfortunately there are still flaws in the final product due to different reasons. Some of the reasons could be deliberate some inadvertent. The credibility of the representations that are being made are usually unknown and the honesty in the representations which are provided to them beforehand may be questioned, making the client or user an object rather than the subject. “The dominance of an instrumental view of people and environments has often resulted in their being treated as objects. As technology has made a wider range of goods available to increasing numbers of consumers, and as they become further separated from the design and production of consumer goods, people have lost their feeling of connection to their material

environments. This separation has lessened feelings of meaningful relationship to their artifacts and their environments, making them feel objectivized as manipulated consumers, that is, less fully human."(Basta & Moron, 2013).

### 1.1 Problem

A major issue being discussed by architects today is the reliability of the graphical information that is being presented by the architects .It is not fully understood to what extent the animations and simulations that have been created, match with the reality and if they are successful of imitating different aspects of a building or not. Sometimes these animations and virtual images may exaggerate reality in others it may understate the building as it is. Some architects change the point of view, or overuse graphics to bury the idea intentionally or unintentionally, a false image of what is built, is presented. The relation of the building to the city, its surroundings and its context are often neglected; which puts a very different perspective from the building in the eye of the spectator. There could be several motives for why an architect or 3D designer uses such overemphasized images to portray their building, a common reason would be the satisfaction of the clients and to sell in large quantities. The interactivity and role of the client reduces to a minimum. "Individuals lose an active role in creating meaning when powerful interests engage in manipulation, deception, or misrepresentation in order to achieve someone else's illegitimate end. When people are manipulated, they become objects, rather than subjects of their lives. When we lack meaningful contact with the other, we lose contact with ourselves. In eschewing authentic relationships, we become alienated people – alienated from ourselves, others, and the world we live in" (Stein et al. 1999 ) . Later on these exaggerations and overstatements cause several problems, aesthetics being one of the main issues. Illustrators can give nice images of skyscrapers and dwellings that have bright light, vegetation surrounding the building and clean streets in the advertisements, which infact the real version might not meet up to the expectations which were presented. Giving unreal images to the planners can often result to misunderstanding and false planning for future projects.

It seems more beneficial to architects and clients if we have more realistic animations and 3D simulations that present us the reality rather than an unreal image of the subject.

Some contemporary architects are criticizing the clients view and the later problems it might cause, Mies van der Rohe notes "Never talk to a client about architecture. Talk to him about his children. That is simply good politics. He will not understand what you have to say about architecture most of the time. An architect of ability should be able to tell a client what he wants. Most of the time a client never knows what he wants. He may, of course, have some very curious ideas, and I do not mean to say that they are silly ideas. But untrained in architecture they cannot know what is possible and what is not possible.“ (Puente, 2008) Although concealing the truth maybe considered an act of fraud but it is not as infamous as presenting a false reality.

### 1.2 Purpose

My aim is to investigate the disharmony and incompatibility between reality and simulations. In a narrower point of view, my subjective is to find out in what percentage the main criteria (Camera ,lights ,contrast , etc,.) of the simulations are adopted to the reality, also to study the reasons of the amount of compliance of the 3D premade simulations, with the real after made buildings.

### 1.3 Methodology & Context

To do so the Animations of 10 buildings of commercial and residential functions, which have been selected in Istanbul will be compared with the real building. The criteria for evaluating will be based on production and post-production sub-factors. These sub-factors will be the criteria for measuring the level of manipulation done in these animations, factors such as Camera, Light, Layout/Modelling, Texturing, Visual Effects, 2D Visual effects, Color correction.

Later a cumulative chart based on the level of manipulation of the sub-factors, a cumulative chart based on the level of manipulation of the buildings, and a holistic cumulative chart will be presented.

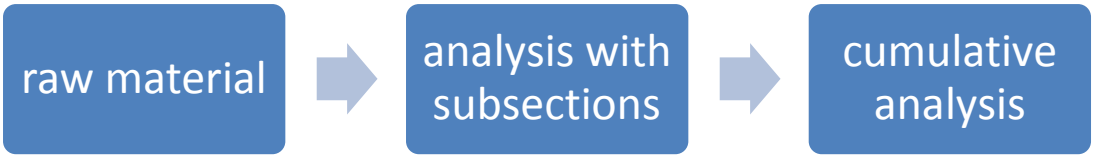


**Figure 1.1 :** Methodology diagram

## 2. CONCEPTUAL FRAMEWORK

### 2.1 2D Sketches and Interpretations

Since the very early ages architects used different methods to present their buildings using 2 dimensional images. They used different coloring techniques and stationary available in their own era, chalk, coal, pencils, watercolor, markers, ink, acrylics, etc. to satisfy themselves or their clients to give a more attractive presentation. A 2D Image however is a medium which it becomes sensible and understood once its mixed with our imagination. Richard Wolheim states that representational seeing involves "seeing as"(1971). Meaning that imagination causes our minds to resemble things as previously experienced or fantasized things. Wolfgang Meisenheimer mentions : "and the question arises whether a new, different understanding of architectural drawing, alludes to a new and different understanding of architecture!? (1987,p.119). Commercialism and consumerism psychology causes images to be deviated from their actual intentions."Richard Kearney calls the culture of image (1988) . This overindulgence of imagery suggests the contious mirror play between imagination and reality in postmodern culture; the image is always in process, subjected to constant reinterpretation." (Shanck smith 2005). A professionally executed 2D sketch of an object or a building may give us a basic or detailed view of it based on the precision of how illustration according to reality, but this presentation doesn't give a holistic view the most important factor here is our imagination.

None the less Our appreciation towards a good image is directly related to imagination also, and is a qualitative relative factor. Wheras guyer mentions Kant:

"The judgment of taste is aesthetic: In order to decide whether or not something is beautiful, we do not relate the representation by means of understanding to the object for cognition, but rather relate it by means of the imagination (perhaps combined with the understanding) to the subject and its feeling of pleasure or displeasure. The judgment of taste is therefore not a cognitive judgment. (Kant , AA V:203, tr. Guyer 2000 )" .In another note he states "The capacity for taking pleasure or displeasure in a

representation is called feeling because both of these involve what is merely subjective in the relation of our representation and contain no relation at all to an object for possible knowledge of it (or even knowledge of our own condition)". (Kant, AA VI:211–212, tr. McGregor 1996b )

Sketches from famous architects and delineators were always appreciated and were widely sought after. One of these architects was Hugh Ferris which in his later works had a specific style of his own which gave a certain attractiveness to his works frequently presenting the building at night, lit up by spotlights, or in a fog, as if photographed with a soft focus. The shadows cast by and on, the building became almost as important as the revealed surfaces. He had somehow managed to develop a style that would elicit emotional responses from the viewer. His drawings were being regularly featured by such diverse publications as the Century Magazine, the Christian Science Monitor, Harper's Magazine, and Vanity Fair., later after his death a memorial prize was honored in his name (Url-3).

**Figure 1.2 :** Sketches from Hugh Ferris

But as technology developed designs were also becoming more sophisticated and 2D illustrations didn't suffice. some typical 2D views weren't enough for the spectator to

fully grasp the design. Ivan Sutherlands sketchpad system could be known as the revolutionary point in which computer graphics were used to present for the first time. it wasn't until recent years that technology developed to 3D image renderings became widespread. These softwares were influential in the thinking process and also the final product."Digital sketching programs such as sketch-up have attempted to imitate conceptual thinking." (Shanck smith 2005). Multiple views from forms and shapes could be achieved from the desired angles, with different modifications in each image. 3D renderings vary from a large range of images to recent mediums that is used in advanced game technology enables a photorealistic walkthrough for architects, These tools are potentially a danger to architects because they allow us to produce awe-inspiring visuals that lack any real substance in terms of their architectonic, spatial or programmatic functions."… However, when one remembers that architectural walkthroughs could be used as a design tool to help clients visualize and make decisions about interior spaces, the question of whether or not to take advantage of them becomes more complicated (Url-5).

### 2.2 Photography manipulation

After the invention of the camera mankind was able to literally freeze a moment in time, and capture a certain duration through the lens of a camera. The camera however, not fully coincided is the closest.

Light sensing device to the human eye vision. The eye of the beholder could only be at one place at one time but photography enabled mankind to go beyond this limit and see things that he or she wasn't present there, this is also true for architecture. "It is, in this respect, the ultimate representation of architecture that is built. There are various techniques, lenses, rules of thumb that are used in architectural photography in order to make the process as "appropriate" as possible. But these special techniques usually provide us with unique visual recording possibilities that are practically and physically impossible to the naked eye. Photographers frequently manipulate light, either artificial or natural, to enhance selected attributes of architecture. Promotional photographs of architecture, rather than supporting a symbolic dialogue between the viewer and a depicted building, encourages the viewer's desire to own a similar kind of architectural commodity. This constructed desire for the represented object shapes the commercial subject-object relationship." (Germen, 2008) Following all this, it is

quite easy to see that photography is about interpretation and therefore can be used to reinterpret a certain physical existence" (Germen, 2008).

**Figure 2.1 :** Photography manipulation.

## 2.3 Lighting manipulation

Another source that is very influential in representation is light. In the design sector it is one of the fundamental elements to be placed. Indirect lighting was very difficult in traditional sketches initial versions of modelling softwares however this has been achieved with nearly full precision in recent years. Even though in photorealistic sunlight has been obtained as well as artificial sunlight, Qualitative factors have yet to be achieved a more realistic look. An example of this flaw could be seen in the HDR toning of recent softwares "the more recent High Dynamic Range (32-bit/HDR) format offers a greater scope of contrast than previous processes with 8-bit and 255 gradations and theoretically covers the full luminance range of Nature (in which the sun is 10,0000 times brighter than a shaded zone), the perception of a perfect HDR rendering in print or on screen still does not fully compare to the atmospheric impression of a real, bright space, because image media currently cannot transmit factors such as glare or adaptation." (Url-6).

The use of light in architectural renders is set by some technical users to be quantitative and fully calculated, whereas some users tend to use light as a form of art and set impressive atmospheres with it. Although the lighting may not be real but it stimulates the imagination and may be an inspiration in innovative designs.

Due to some lackings in these softwares or visual aesthetic reasons a light source may not be a true form of light which can be used or placed in reality. For example an indirect sunlight beam may appear brighter than an artificial light source. No matter the type of lighting used it should be enough to be believable by the viewer.

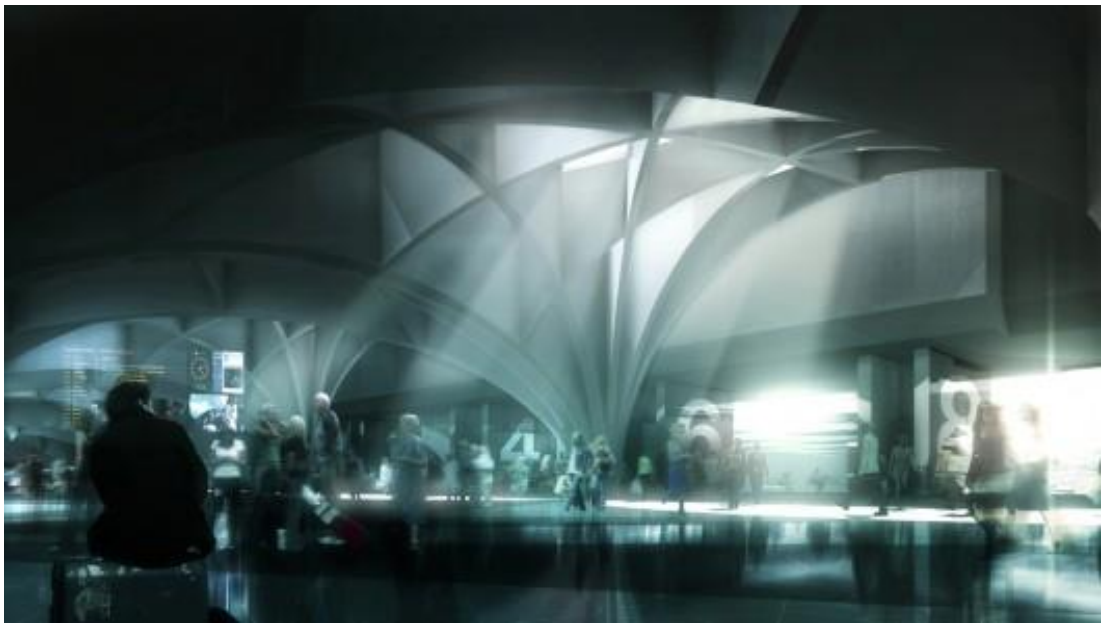

**Figure 2.2 :** Light manipulation.

## 2.4 Editing softwares

Image editing softwares have been commonly widespread since personal computers were introduced to the public for everyday usage. Several softwares have been developed some even specifically for architecture, for example SKALGUBBAR is a library of free high-resolution images of people that can be used in renderings and photomontages. The idea for this immense virtual library came to the creator when he was in architecture school. Seeming difficult to find images of people on the internet, and that he wasn't satisfied of the color quality and resolution, he decided to photograph his friends and use their likenesses in his projects; his friends also used these images in their own projects.

Perhaps the most common used photo editing software in the world is Adobe Photoshop. Ever since the emersion of Photoshop in the early 90's it has revolutionized the presentation of buildings with all kinds of effects and filters.

The most prevalent use of Photoshop in the architecture profession though has ironically little to do with photographs, per se. Photoshop is used every day as a tool to help produce photo-realistic renders of projects yet to be built. Combined with ever-advancing modeling and rendering software, the photo-realistic architectural render has been a topic of much debate over the years, with discussions in journals centering on whether spectacular renderings create unrealistic expectations for projects that could never live up to the fantasy of the initial image (Url-4).

### 2.5 Advertising Psychology

The influence of advertising and marketing in architecture starts simultaneously as the influence of it in other sectors. From billboards, TV commercials to presentations. The visual appeal of a product is sometimes as important if not more ,than the project its self.

A major goal of marketing is to exploit the need for meaning by manipulating potential buyers into feeling a superficial sense of meaning and identity from their purchase of products. Increasingly, we derive our identity from the products we buy, the spaces we inhabit, and the activities in which we participate ( Sparke 2006 ).

Marketing also attempts to lure consumers into competitive consumption, in which products are purchased in order to position them favorably in comparison to others in their social group (Lansley 1994 ). According to fox there two schools are known, respectively, as the "soft-sell" approach and the"hard-sell" approach. In which Softsell approchers rely more on visual aspects and striking images and set priority to the image of the product whereas hardsell approachers are more  the quality of the product For these advertisers, “it's the "matter, not the manner" that counts (Fox, 1984, p. 324).” One way to address a question such as this one is to identify categories of individuals who are especially responsive to either type of advertising: “One category of individuals who are especially responsive to image-based advertising appeals and a contrasting category of individuals who are especially responsive to product-quality-based advertising appeals.”(Snyder & De Bono 1985)

Advertisings main functions are to inform, persuade and influence. However the concern of this thesis is more on the persuasive aspect of advertising. There are 2 ways a communication can be persuasive, through the central route, or peripheral route.

in the central route a direct connection is being made, it requires involvement. Involvement is how much time, energy and other resources the receiver is willing to put into the process. It depends to some extent on the amount of personal demand for a certain product. For example a client who is already willing to buy a house and is influenced by advertisements, Would have a higher possibility of buying a house in a logical sense. The peripheral route is where the receiver does not think carefully about a communication and is instead influenced by superficial cues such as emotional stories, music, bright colors, or an attractive speaker. The message content becomes ignored. The results are temporary. Emotions have a huge impact on how people are persuaded and affected. Affect is the experience of a feeling or emotion, which occurs rapidly and involuntarily in response to a stimulus.

If a stimulus arouses a negative affect, the risks are higher and the benefits are lower. And on the contrary if it arouses a positive affect, the benefits are higher and the risks are reduce and the chances of buying a product increase. In this manner these advertisers or presenters do a form of psychological manipulation, According to psychology author George K. Simon (1996), successful psychological manipulation primarily involves the manipulator: "Concealing aggressive intentions and behaviors. knowing the psychological vulnerabilities of the victim to determine what tactics are likely to be the most effective. having a sufficient level of ruthlessness to have no qualms about causing harm to the victim if necessary."

For this reason advertisers use positive emotional images, slogans. The amalgamation of these images work through the peripheral route. The desire for new and more attractive methods of presentation with the influence of technology development is deeply connected with the urge for seeking perfection. "Fashionable mass-produced consumer products are slick, sleek, shiny, bright, and perfect. But the illusory nature of their perfection rapidly becomes apparent as their colors and styles go out of fashion." These fashions and attractivenesses are usually outdated by their successors and are on a never ending continuum.

## 3. A PARAMETRICAL RELIABILITY ANALYSIS PROPOSAL FOR ARCHITECTURAL REPRESENTATION

Architecture has always been influenced by other mediums and fields. To present a building it is required to apply these other fields in the sector. Presenting is a very important part of an architects professional career and these presentations develop alongside the development of architecture itself. One of these mediums which has been widespread in recent years thanks to rapid technology developments is 3D renders created by simulation softwares. Thousands of still image 3D simulations are set side by side and create the illusion of motion; in this case animation. Animations can give us sufficient information about a building, its features and its context in a very short amount of time even prior to the buildings construction.

Some architecture firms do their own animations but due to lack of experience and utilities for this profession, they might give the responsibility to animators or advertising agencies.

But how reliable are these animations, and to what extent do the animations actually match with the reality is a question not to be neglected. Some simulations are inadvertently flawed and mismatched with the actual building and sometimes they are exploited by the animators deliberately. The clients might be taken advantage of, for sale purposes only.

To answer this question the animation of 10 high-rise buildings which have been completed from the city of Istanbul have been selected to be compared with the actual buildings as they appear, in fields that structure an animation such as Camera, Lights, Layout and modelling, Texture, Visual effects, 2D Visual effects and Color correction. Multiple sub- factors evaluate the mentioned fields in the comparison. The amount of deceiving factors of the categories, and the manipulation done in each building is calculated and compared.

### 3.1 Methodology descriptions

In this part we will explain the scope of the schemes that we intend to use in this thesis. Although the scope of our study is limited to false graphical representation of architects via simulation mediums. That is representations which were exaggerated, false or failed to reveal information.

This study will only have emphasis on the final product of the interior and exterior 3D simulations and perspective presentations of buildings that have been created in animation studios and advertising agencies, of different purposes, as a way of presenting before or while the building was being completed. What we mean by final product is only the graphical product which is known as a perspective view.

The following method is to test manipulation by architects specifically, animation simulation videos as a form of representation. The represented simulated video is compared with an analysis made on the actual building itself as it appears in reality. The manipulative and unreal factors that are common in most renders will also be identified.

The method for this study will be a case study based on 10 controversial big budget buildings that have been completed in Istanbul, which are high rise buildings or exceed an area over 50,000 square meters  and have been constructed in the past 20 years. The functionality of the buildings are commercial and residential. ,

#### 3.1.1 Criteria of analysis

The categories of evaluation have been selected in the hierarchy of creating 3D simulation via 3D rendering softwares, and basic animation protocals which were based on Andy beanes simple classification of animation procedures.

The categories of video manipulation are categorized into 3 Stages, which consists of 8 sections, Animation, Light, Layout, Modelling, Texturing, Visual Effects, 2D Visual effects, Color correction.

classification based on Beanes book:.

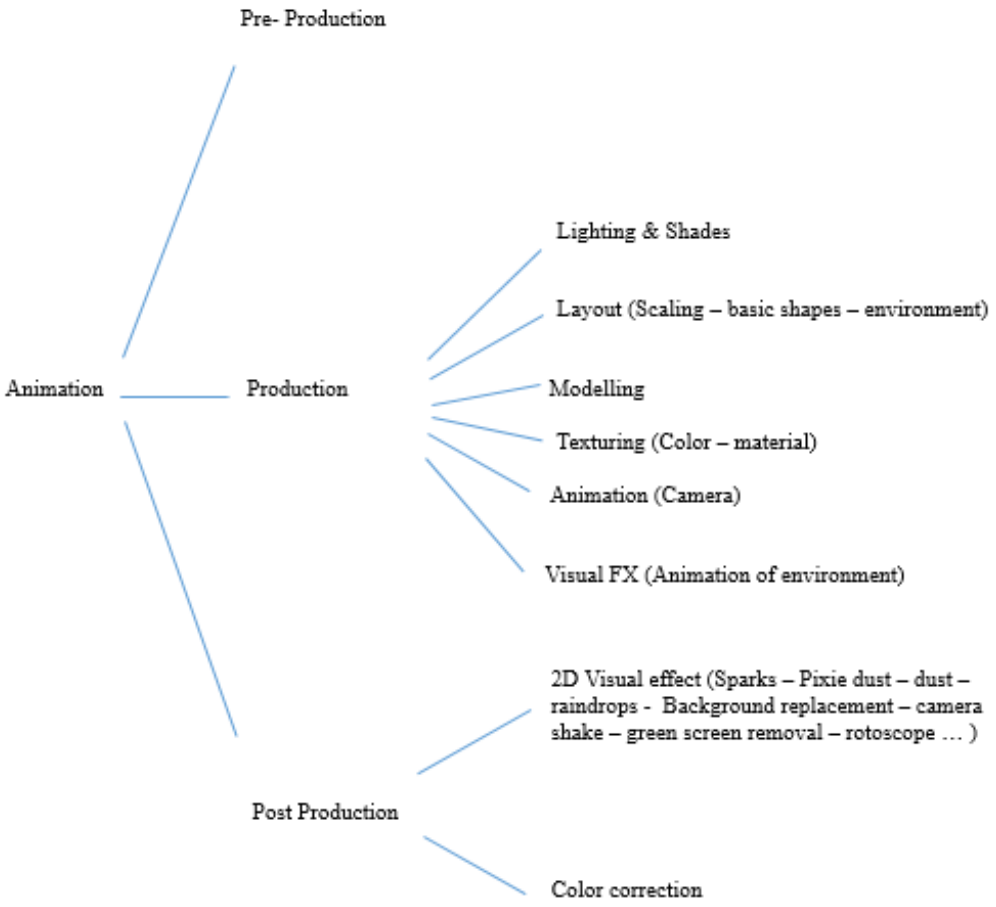


**Figure 3.1 :** Animation diagram.

However in this classification our concentration will be on architectural animation, therefor irrelevant sections have been omitted or merged.

The Pre-production stage in general animation is the stage of concept thinking and consists of plotlines, script writing, designing storyboards etc. which is generally not applied in architectural animation however if the pre-production stage of architectural animation is defined to be the conceptual stage it is out of the scope of this thesis. The Main viewer and spectator in an architectural animation is the camera therefore the animation section has been replaced with the cameras view. The layout level is generally used for character animation and is merged with the stage of modelling in architecture.

In this sense camera will be evaluated by attributes that can only be acquired by the camera its self, such as panning (position and movement), sequence, lens, camera.

light will be evaluated by Natural lights and artificial light which contain additional lights and contrast etc. Form will be identified by (Ratio), adding or subtracting external objects to the building or the environment and similar sections .Effects will be divided into color and aesthetic effects such as beams and sparks and stylize effects.

For testing the credibility of the animations and simulations, a comparison will be made from a number of buildings that had premade animations and real life snapshots taken from the sites, the comparison will be based on previous studies and the criteria will be classified on a set of physical and non physical factors,

The raw data will be set separately in a qualitative analysis chart with Yes or No inquiries which indicate the use of the manipulation factor in that field. The factors will be evaluated in sub-section features which demonstrate the main category.

For example:

**Table 3.1 :** Category evaluation.

| | | YES | NO |
|---|---|---|---|
| Category | Sub-factor 1 | | |
| | Sub-factor 2 | | |
| | Sub-factor 3 | | |
| | Sub-factor 4 | | |
| | Total | | |

Then a percentage of the total numbers of manipulation will be given, which will be used later on for cumulative purposes.

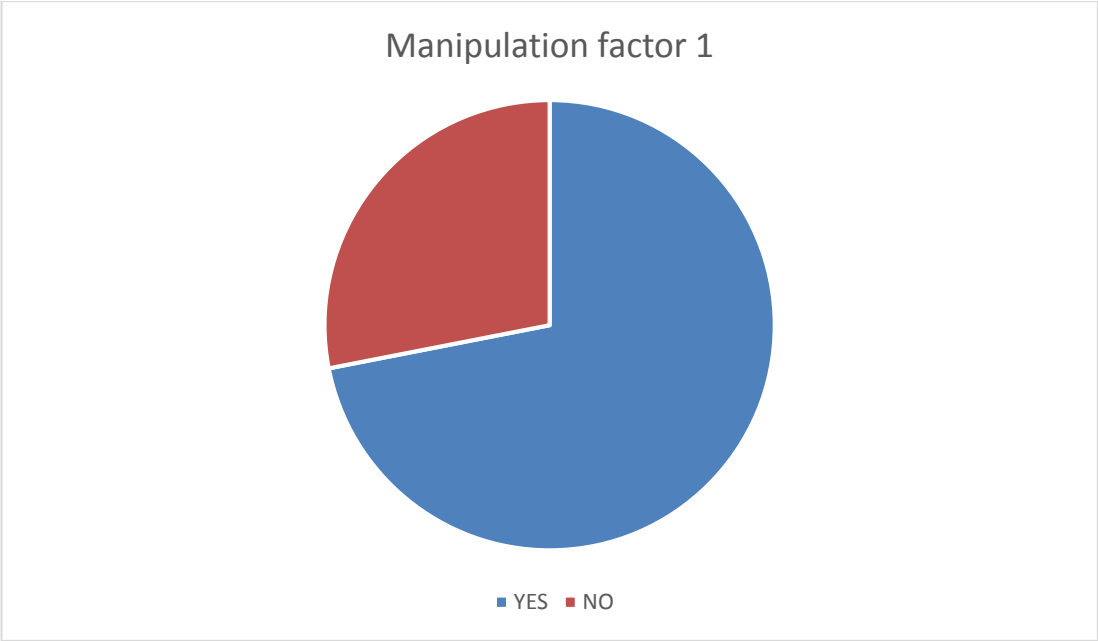


**Figure 3.2 :** Example for manipulation factor.

In the next level, the collected data will be presented in a pie chart which indicates the manipulation categories of each building.

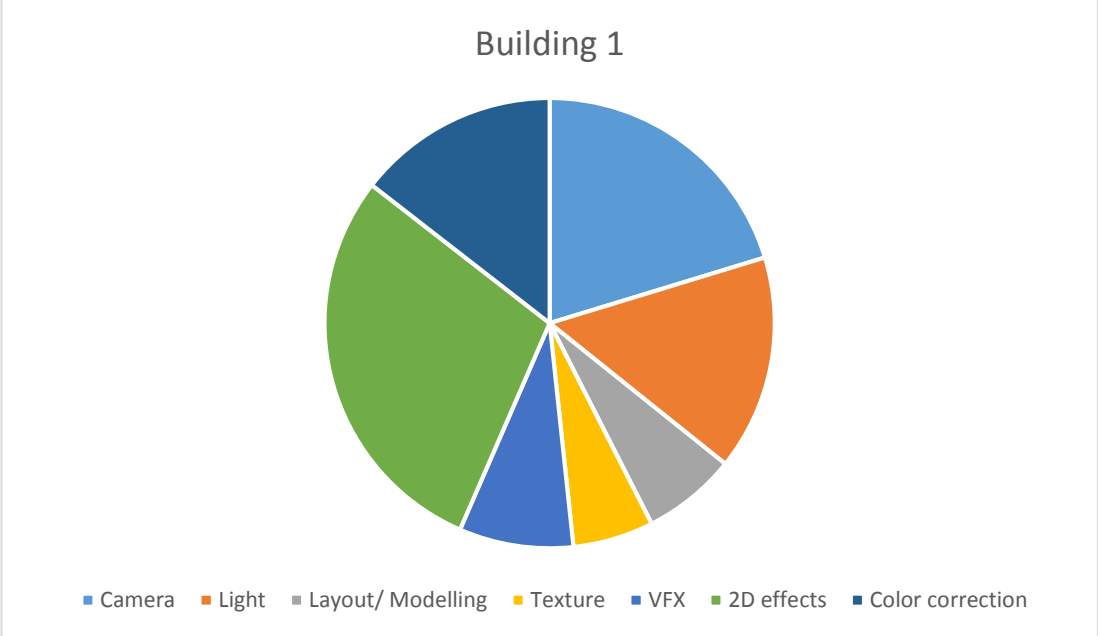


**Figure 3.3 :** Example for each buildings manupilative factors.

The following data of each section will be evaluated later on in a cumulative table which will show a total score of manipulation. The manipulation factors will be shown in percentages and a pie chart of the average manipulation will be presented.

A second cumulative pie chart will be presented based on number of yeses on each section, this will show the most manipulative building.

A general holistic table will be presented with a coefficient value multiplied to the sub-factors from 1 to 4, based on importance of the subfactors.

Finally an overall discussion and conclusion from the chart will be made. and the final conclusions will be according to the chart

**Table 3.2 :** Cumulative evaluation 1.

| | | Category 1 | Category 2 | Category 3 | Category 4 | Category 5 | TOTAL |
|---|---|---|---|---|---|---|---|
| | Building 1 | | | | | | |
| | Building 2 | | | | | | |
| | Building 3 | | | | | | |
| | Building 4 | | | | | | |
| | Building 5 | | | | | | |
| | Building 6 | | | | | | |
| | Building 7 | | | | | | |
| | Building 8 | | | | | | |
| | Building 9 | | | | | | |
| | Building 10 | | | | | | |
| | TOTAL | | | | | | |

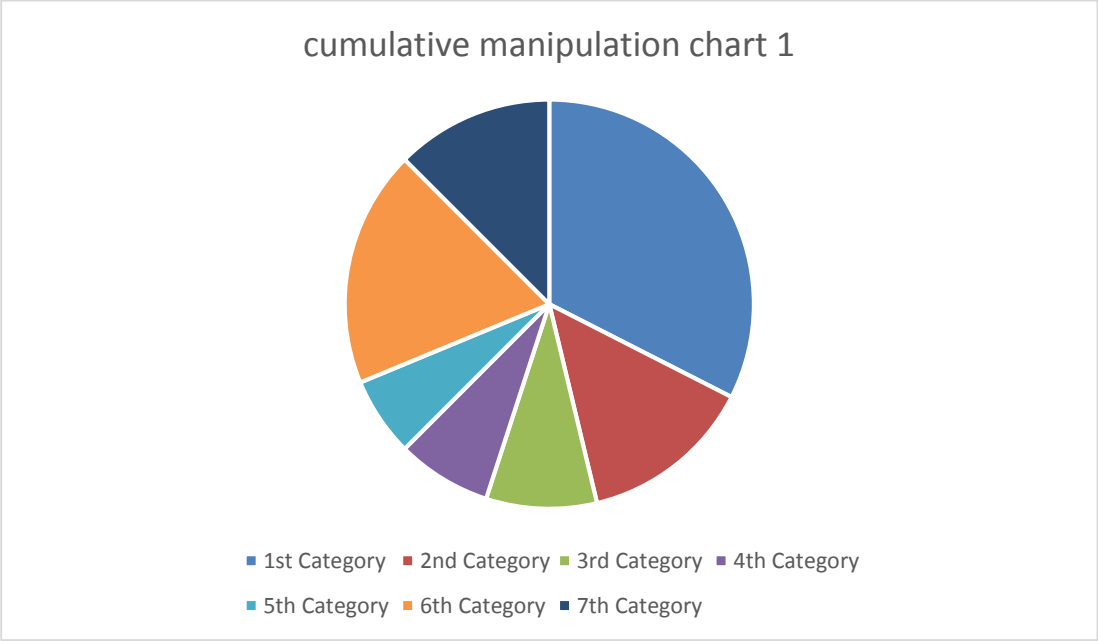


**Figure 3.4 :** Example for cumilative manipulation chart based on categories.

**Table 3.3 :** Cumulative evaluation 2.

| | | Category 1 | Category 2 | Category 3 | Category 4 | Category 5 | TOTAL |
|---|---|---|---|---|---|---|---|
| | Building 1 | | | | | | |
| | Building 2 | | | | | | |
| | Building 3 | | | | | | |
| | Building 4 | | | | | | |
| | Building 5 | | | | | | |
| | Building 6 | | | | | | |
| | Building 7 | | | | | | |
| | Building 8 | | | | | | |
| | Building 9 | | | | | | |
| | Building 10 | | | | | | |
| | TOTAL | | | | | | |

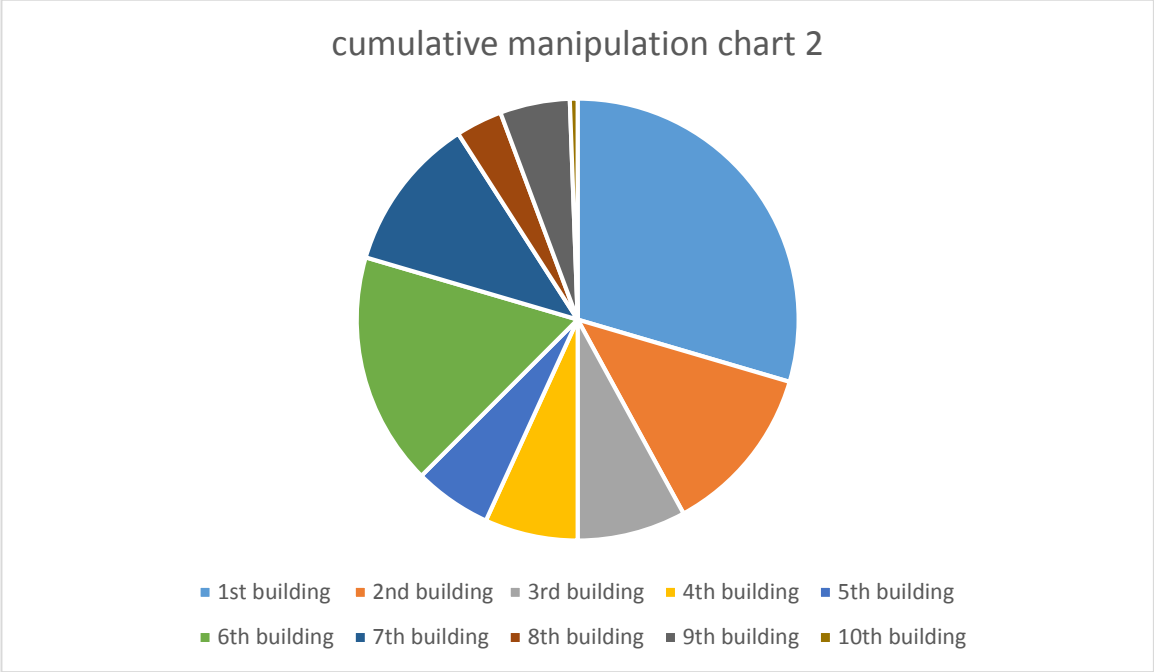


**Figure 3.5 :** Example for cumulative manipulation chart based on building titles.

**Table 3.4 :** Cumulative evaluation 3.

| | | Category 1 | | | Category 2 | | | Category 3 | | | Category 4 | | | Category 5 | | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sub-factor 1 | Sub-factor 2 | Sub-factor 3 | Sub-factor 1 | Sub-factor 2 | Sub-factor 3 | Sub-factor 1 | Sub-factor 2 | Sub-factor 3 | Sub-factor 1 | Sub-factor 2 | Sub-factor 3 | Sub-factor 1 | Sub-factor 2 | Sub-factor 3 | |
| | Building 1 | | | | | | | | | | | | | | | | |
| | Building 2 | | | | | | | | | | | | | | | | |
| | Building 3 | | | | | | | | | | | | | | | | |
| | Building 4 | | | | | | | | | | | | | | | | |
| | Building 5 | | | | | | | | | | | | | | | | |
| | Building 6 | | | | | | | | | | | | | | | | |
| | Building 7 | | | | | | | | | | | | | | | | |
| | Building 8 | | | | | | | | | | | | | | | | |
| | Building 9 | | | | | | | | | | | | | | | | |
| | Building 10 | | | | | | | | | | | | | | | | |
| | TOTAL | | | | | | | | | | | | | | | | |

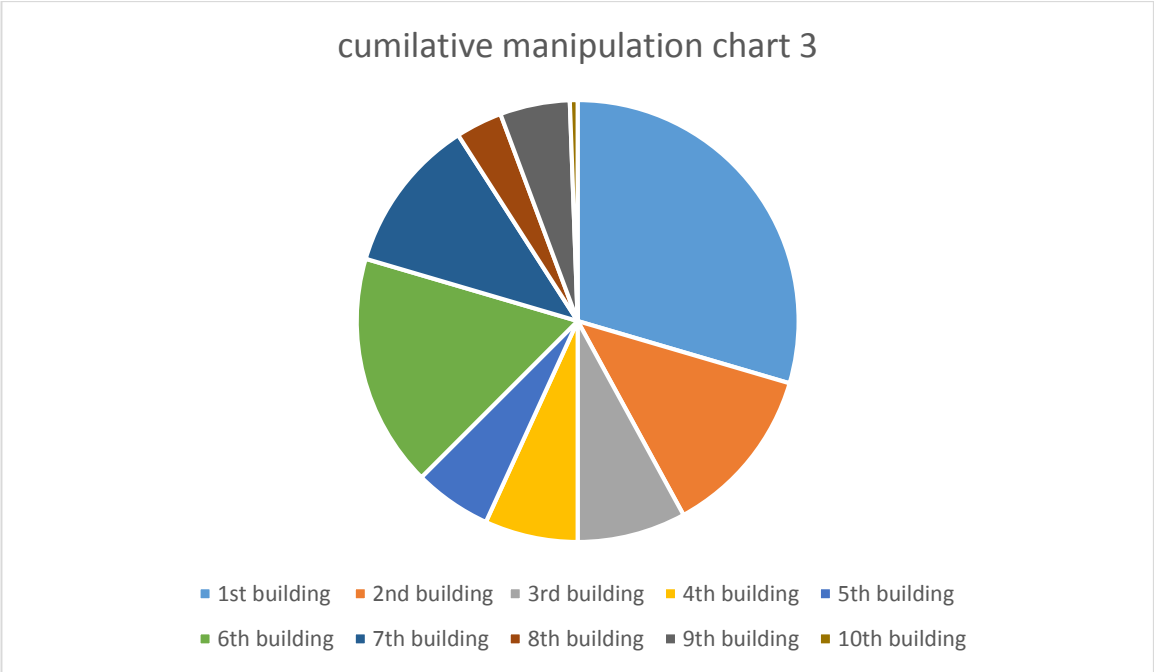


**Figure 3.6 :** Example for cumilative manipulation chart based on categories including coefficients.

### 3.1.2 Definition of criteria

Measures of comparison of reality with animation will be according to 2 main factors of absolute and relative factors:

The measurement varies for each simulation. Relative factors can be compared with either one source as a standard. For example in shot length chronological order is set to be a standard and as a natural way of occurrence, however in camera levitation the human scale has been set as a standard of natural view; or can be a measurement of the simulated version according to the reality. Absolute factors test the existence or absence of manipulating factors that occur in the simulated version. These factors are independent from the content of the video.

**Table 3.5 :** Table of evaluation of each building.

| Coefficient | | | YES | NO |
|---|---|---|---|---|
| X1 | Camera | Levitation | | |
| | | Sequence | | |
| X2 | | Lens | | |
| X4 | | Subject matter | | |
| | | Point of view | | |
| X2 | Light | Natural | | |
| | | Artificial | | |
| X4 | Layout/ Modelling | Ratio | | |
| | | Basic shape | | |
| | | Environment (Site) | | |
| | | Surrounding | | |
| X3 | Texture | Transparency | | |
| X4 | | Color | | |
| | | Material | | |
| X1 | VFX | Background objects in motion | | |
| X3 | 2D Effect | Texts | | |
| | | Blur & sharpness | | |
| | | Diffuse | | |
| | | Beams & Sparks | | |
| | | Climate conditions | | |
| | | Rotoscope & Keying | | |
| | | Stylize effects | | |
| | | Transitional | | |
| | | Extra scenes | | |
| X3 | Color Correction | Color filter | | |
| | | HDR | | |

In the production stage one of the categories is camera which is divided into four attributes,

Levitation: The reference for this factor is mainly human scale, bird view angle, extremely low angles and unobtainable positions are considered as manipulating factors.

**Figure 3.7 :** Levitation manipulation.

Lens: in which unusual lenses such as 35 mm or fisheye which give a different perspective have been considered as manipulating factors.

**Figure 3.8 :** Lens manipulation.

Sequence : Having an unchronological order in the appearance of scenes also The frequent use of cuts from multiple angles and lesser tendency towards long shots is a negative point in this chart.

**Figure 3.9 :** Sequence manipulation.

Subject matter: The frequent focus or emphasis on objects and properties of the building rather than building itself.

**Figure 3.10 :** Subject matter manipulation.

Point of view: The points of view and framing of camera which are not mentioned or have been hidden from the frame.

**Figure 3.11 :** POV manipulation.

**Table 3.6 :** Camera manipulation factors

| | | YES | NO |
|---|---|---|---|
| Camera | Levitation | | |
| | Lens | | |
| | Sequence | | |
| | Subject matter | | |
| | Point of view | | |

As for lighting 2 main sub-categories have been discussed.

Natural: for natural light parameters such as sources, their positions, indirect illumination, Shadow accordance are criteria for qualitative measurement .

**Figure 3.12 :** Natural light manipulation.

Artificial: for artificial lights the measure will be a qualitative comparison based on the level of illuminance, color, glare, Shadow, and indirect illumination.

**Figure 3.13 :** Artificial light manipulation.

**Table 3.7 :** Lighting manipulation factors

| | | YES | NO |
|---|---|---|---|
| Lighting | Natural | | |
| | Artificial | | |

The layout category and modelling category have been merged into one, which have attributes from both fields,

Ratio: The accordance of the ratio of the simulated version to the real building

**Figure 3.14 :** Ratio manipulation.

Basic shape: The accordance of the form of the building with the real form.

**Figure 3.15 :** Basic shape manipulation.

Site: The accordance of the site of building with the actual site.

**Figure 3.16 :** Site manipulation.

Surrounding: The accordance of reality with the outter perimeter of the building.

**Figure 3.17 :** Surrounding manipulation.

**Table 3.8 :** Layout/ Modelling manipulation factors

| | | YES | NO |
|---|---|---|---|
| Layout/ Modelling | Ratio | | |
| | Basic shape | | |
| | Environment (Site) | | |
| | Surrounding | | |

The texture of the building is divided into 3 sub-factors:

Color: The color of the components in the simulated version according to the actual colors.

**Figure 3.18 :** Texture color manipulation.

Material: The material maps and emboss and details used in the simulation in comparison with reality.

**Figure 3.19 :** Material manipulation.

Transparency: The transparent objects have been modeled according to reality or have been simulated in manipulative senses.

**Figure 3.20 :** Transparency manipulation.

**Table 3.9 :** Texture manipulation factors

| | | YES | NO |
|---|---|---|---|
| Texture | Color | | |
| | Material | | |
| | Transparency | | |

Visual effects are objects and components that are separate from the building in motion, in other words the animation of the surrounding environment, such as human figures, cars, trees, etc. The measurement for this factor is based on sources such as

the animation and position of these figures and their compliance with the actual construction.

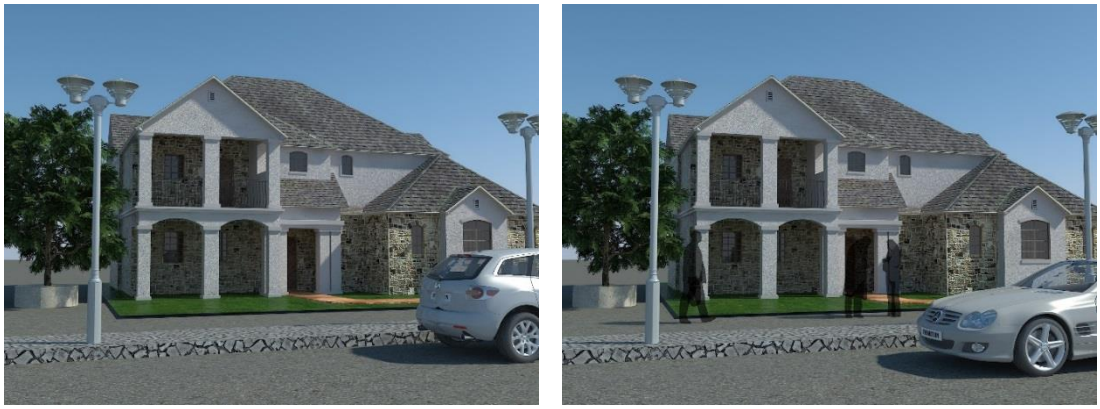

**Figure 3.21 :** VFX manipulation.

**Table 3.10 :** VFX manipulation factors

| | | YES | NO |
|---|---|---|---|
| VFX | Background objects in motion | | |

2D Visual effects are a series of effects that are done in the post-production stage. And are graphical elements that add aesthetic value.

Texts: The usage of titles in the video.


**Figure 3.22 :** Text manipulation.

Blur and sharpness: Exaggeration in the depth of field of the camera. This effect consists of Gaussian blur, motion blur, radial blur, lens blur, bokeh, etc.

**Figure 3.23 :** Blur manipulation.

Diffuse: Spreading the light from a light source evenly to reduce glare and harsh shadows.

**Figure 3.24 :** Diffuse manipulation.

Beams & sparks: Adding beam particles and sparks, for example car lights in motion.

**Figure 3.25 :** Beam manipulation.

Climate conditions: Adding snow or rain or other climate elements in the animation for aesthetic purposes.

**Figure 3.26 :** Climate conditions manipulation

Rotoscope & keying: Rotoscoping is the act of tracing an object in film or video to be able to add or remove that object. Chroma keying is the act of removing the background of a video usually using green or blue screen backgrounds. Later on, the exclaved video is layered to another video.

**Figure 3.27 :** Keying manipulation.

Stylize effects: Adding a graphical or aesthetic filter in a part or the entirety of the film.

**Figure 3.28 :** Stylize manipulation.

Transitions: Having effects on transitions for instance fading.

**Figure 3.29 :** Transitional manipulation.

Extra scenes: Adding disjointed and independent scenes from the building.

**Figure 3.30 :** Extra scene manipulation.

**Table 3.11 :** 2D VFX manipulation factors

| | | YES | NO |
|---|---|---|---|
| 2D Visual Effects | Texts | | |
| | Blur & sharpness | | |
| | Diffuse | | |
| | Beams & Sparks | | |
| | Climate conditions | | |
| | Rotoscope & Keying | | |
| | Stylize effects | | |
| | Transitional | | |
| | Extra scenes | | |

Color correction stage is the other post production element which will be measured.

It consists of :

Color filter: The act of additional color filters throught a fragment or entirety of the film.

**Figure 3.31 :** Color filter manipulation.

HDR: high dynamic range imaging is a set of techniques used in imaging and photography to reproduce a greater dynamic range of luminosity than standard digital imaging or photographic techniques can do.

**Figure 3.32 :** HDR manipulation.

**Table 3.12 :** Color correction manipulation factors

| | | YES | NO |
|---|---|---|---|
| Color correction | Color filter | | |
| | HDR | | |

### 3.2 Analysis

The constructions that were selected from the city of Istanbul, are in the following order:

Zorlu Center, Onalti dokuz, Four winds Istanbul, Varyap Meridian, Mall of Istanbul, Dumankaya Ikon, Akasya , Platform merter, Viaport suites, The Istanbul Veliefendi.

#### 3.2.1 Zorlu Center

Zorlu Center is Turkey's first "mixed use" project with 5 functions which is realized by the Joint Initiative Group of Tabanlıoğlu Mimarlık – Emre Arolat Mimarlık Ltd.

Şti. The area on which the construction was built extends over 619.595 m² including business center, culture and art center, hotel, shopping center and residences. It is located in the Zincirlikuyu neighborhood on the European side of Istanbul, Turkey.

The culture and art center of Zorlu Center is constructed over an area of about 30 thousand sqm and with a capacity of 3500 people. There are also a 5-star international hotel and a shopping center including world famous brands.

The offices that are planned as integrated parts of the overall project are positioned horizontally on a single floor rather than gathering in a tall tower.
Over 100 firms applied for a competition held by Zorlu holdings and 13 were selected to take part in the competition with Tabanlıoğlu Mimarlık and Emre Arolat Mimarlık submitting the winning proposal. *A Vision in Architecture: Projects for the Istanbul Zorlu Center* (2012) by Süha Özkan documents the design competition (Url-8). Construction was completed in 2013.
The animated simulation selected for this section is by H4Group (Url-10).


**Figure 3.33 :** Zorlu center location.

CAMERA

**Figure 3.34 :** Zorlu center sillhouette damage.

**Table 3.13 :** Zorlu center camera manipulation.

| | | YES | NO |
|---|---|---|---|
| Camera | Levitation | The height of the camera was not according to human scale | |
| | Lens | | X |
| | Sequence | The sequence of the video was not according to chronological order | |
| | Subject matter | | X |
| | POV | Some views from the building were neglected. For example a far view from the Asian side of Istanbul, and the damage it did this caused to the silhouette from that point of view | |
| | Total | 3 | 2 |

LIGHTING

**Figure 3.35 :** Vertical artificial lights were added. natural light was unmanipulated.

**Table 3.14 :** Zorlu center light manipulation.

| | | YES | NO |
|---|---|---|---|
| Lighting | Natural | | X |
| | Artificial | A vertical glare is added to the buildings on the night modes in several scenes which doesn't exist in reality. | |
| | Total | 1 | 1 |

LAYOUT / MODELLING

**Figure 3.36 :** Zorlu center modelling comparision.

**Table 3.15 :** Zorlu center modelling manipulation.

| | | YES | NO |
|---|---|---|---|
| Layout/ Modelling | Ratio | | X |
| | Basic shape | | X |
| | Environment (Site) | Trees have been simulated instead of buildings in some areas. | |
| | Surrounding | Trees have been simulated instead of buildings in some areas. | |
| | Total | 2 | 2 |

TEXTURE

**Table 3.16 :** Zorlu center texture manipulation.

| | | YES | NO |
|---|---|---|---|
| Texture | Color | | X |
| | Material | | X |
| | Transparency | The exterior windows are more transparent and the opposite side of the building is visible. | |
| | Total | 1 | 2 |

VFX

**Table 3.17 :** Zorlu center VFX manipulation

| | | YES | NO |
|---|---|---|---|
| VFX | Background objects in motion | The personaj were shown as white figures which are unrealistic and may give a feeling of the high class society that will be living or shopping there | |
| | Total | 1 | 0 |

2D VISUAL EFFECT

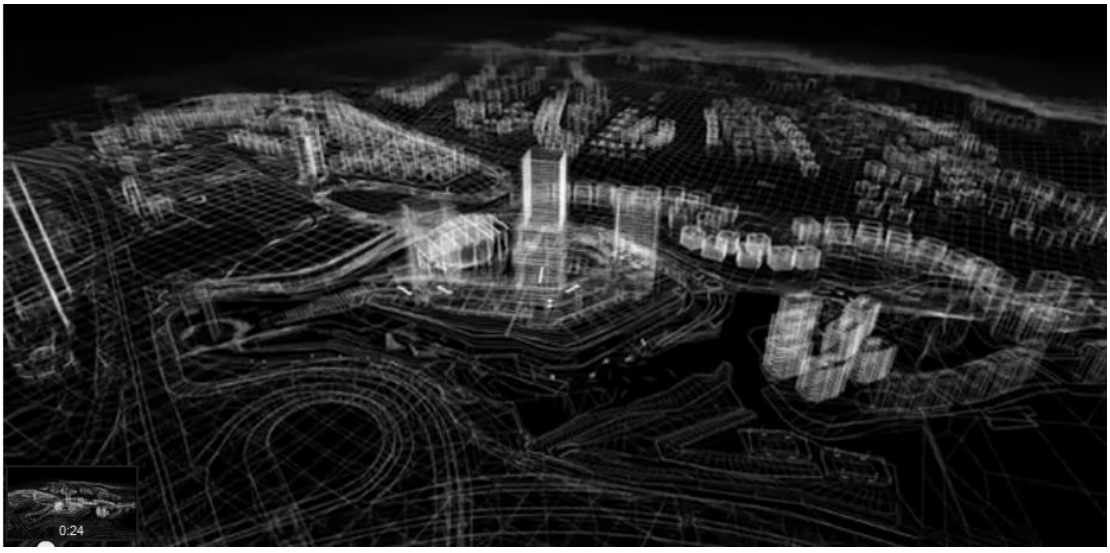


**Figure 3.37 :** Extra scene usage.

**Table 3.18 :** Zorlu center 2D VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| 2D Visual Effects | Text | | X |
| | Blur & sharpness | | X |
| | Diffuse | | X |
| | Beams & Sparks | Used in motion of vehicles. | |
| | Climate conditions | | X |
| | Rotoscope & Keying | | X |
| | Stylize effects | In the beginning of the video there are wireframe effects of area. | |
| | Transitional | Some transitional effects were added. | |
| | Extra scenes | In the beginning of the video as a prologue. | |
| | Total | 4 | 5 |

COLOR CORRECTION

**Table 3.19 :** Zorlu center color manipulation.

| | | YES | NO |
|---|---|---|---|
| Color correction | Color filter | | X |
| | HDR | | X |
| | Total | 0 | 2 |

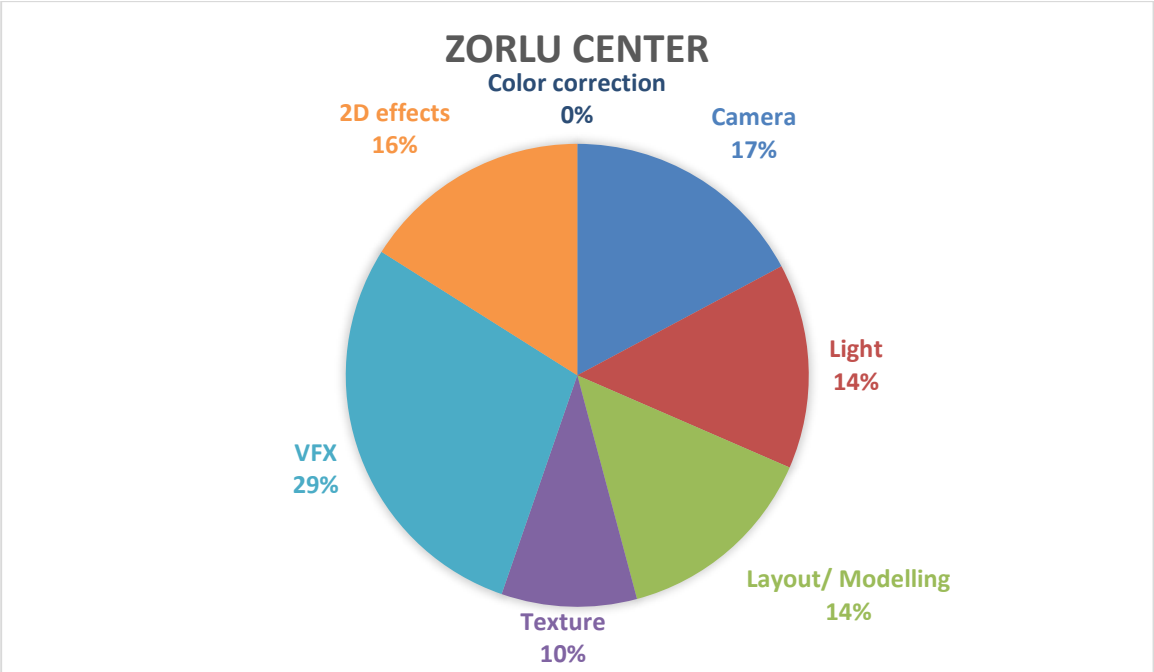


**Figure 3.38 :** Zorlu center manipulation.

### 3.2.2 Istanbul 16:9

These towers became conterversial on Dec. 13, 2013 when The İstanbul 4th Administrative Court ordered the destruction of a number of floors of 16:9, which was already under construction, on the grounds that they affect the silhouette of the city. Following appeals, the Council of State ordered the height of the towers to be reduced by 45 meters.

The land on which the 16:9 towers are being built was bought in 2008 by Astay and the İstanbul metropolitan municipality and the Zeytinburnu municipality permitted for a taller building than usual. The construction permit was issued, construction commenced and sales of the apartments began for all three towers. As the towers rose it became clear that they protruded into the city's silhouette, creating an undesirable sight, resulting in an application to the İstanbul Administration Court to demolish the buildings, which was accepted on May 9, 2013. On Sept. 2, 2014 the Zeytinburnu municipality arranged a tender for a contract to demolish the top floors, which protruded into the silhouette. No firm participated in the tender, leaving the fate of the top floors of the controversial 16:9 buildings in an indeterminate state.

An administrative investigation was launched in November 2014, into Zeytinburnu The municipalitys  public housing directors by the Bakırköy Chief Public Prosecutor's Office for failing to abide by the court's decision and have the offending floors of the complex demolished (Url-9).

**Figure 3.39 :** Onalti dokuz.

CAMERA

**Figure 3.40 :** Damage to silhouette,Subject matter and POV manipulation

**Table 3.20 :** Onalti dokuz camera manipulation.

| | | YES | NO |
|---|---|---|---|
| Camera | Levitation | The height of the camera was not according to human scale and the panning is manipulative | |
| | Lens | | X |
| | Sequence | The sequence of the video was not according to chronological order | |
| | Subject matter | Several objects such as Home appliances and furnitures have been brought up in focus. | |
| | POV | - The houses located on the northwest territory of the site of the building have been neglected.<br>- A view which the buildings are visible behind the Sultan Ahmet mosque and the damage it does to the silhouette of the city has been neglected. | |
| | Total | 4 | 1 |

LIGHTING

**Figure 3.41 :** Deceiving light and diffuse were used throught the video.

**Table 3.21 :** Onalti dokuz light manipulation.

| | | YES | NO |
|---|---|---|---|
| Lighting | Natural | The glare of the sun is unnatural. | |
| | Artificial | | X |
| | Total | 1 | 1 |

LAYOUT / MODELLING

**Figure 3.42 :** Onalti dokuz modelling comparision.

**Table 3.22 :** Onalti dokuz modelling manipulation.

| | | YES | NO |
|---|---|---|---|
| Layout/ Modelling | Ratio | | X |
| | Basic shape | A non-existent ridge has been added on the rooftops. | |
| | Environment (Site) | | X |
| | Surrounding | | X |
| | Total | 1 | 3 |

TEXTURE

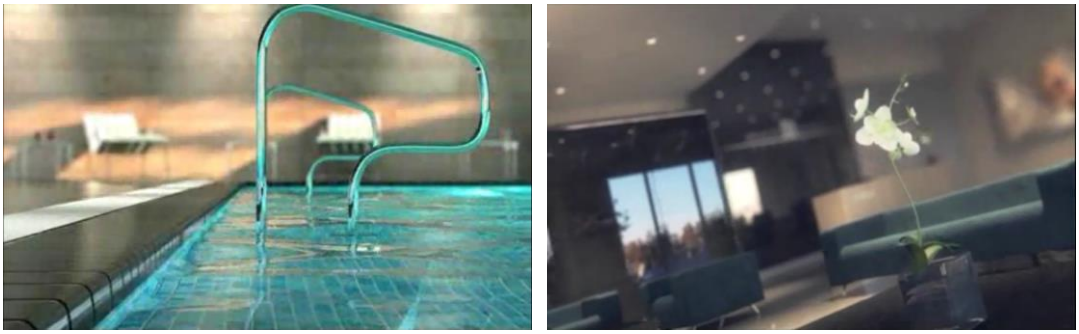

**Figure 3.43 :** Texture details.

**Table 3.23 :** Onalti dokuz texture manipulation.

| | | YES | NO |
|---|---|---|---|
| Texture | Color | | X |
| | Material | | X |
| | Transparency | The transparency of the water | |
| | Total | 1 | 2 |

VFX


**Figure 3.44 :** Luxury cars in the perimiter.

**Table 3.24 :** Onalti dokuz VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| VFX | Background objects in motion | There were no usage of people except luxury vehicles. | |
| | Total | 1 | 0 |

2D Visual effects

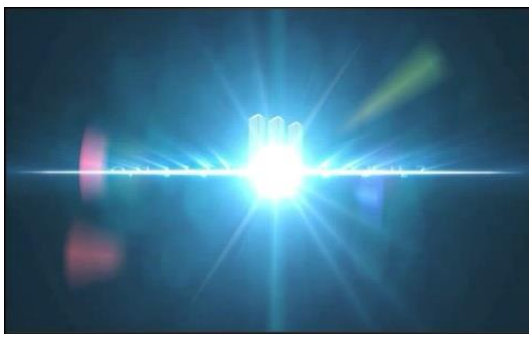

**Figure 3.45 :** Beams, blur and diffuse were frequently used.

**Table 3.25 :** Onalti dokuz 2D VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| 2D Visual Effects | Text | Beginning of Movie | |
| | Blur & sharpness | Was used frequently | |
| | Diffuse | In several scenes inside and outside. | |
| | Beams & Sparks | Used in text effects | |
| | Climate conditions | Ideal Vanilla and sunny days. | |
| | Rotoscope & Keying | | X |
| | Stylize effects | | X |
| | Transitional | Some transitional effects of fading to black were added. | |
| | Extra scenes | In the beginning of the video as a prologue. | |
| | Total | 7 | 2 |

COLOR CORRECTION

**Table 3.26 :** Onalti dokuz color manipulation.

| | | YES | NO |
|---|---|---|---|
| Color correction | Color filter | | X |
| | HDR | | X |
| | Total | 0 | 2 |

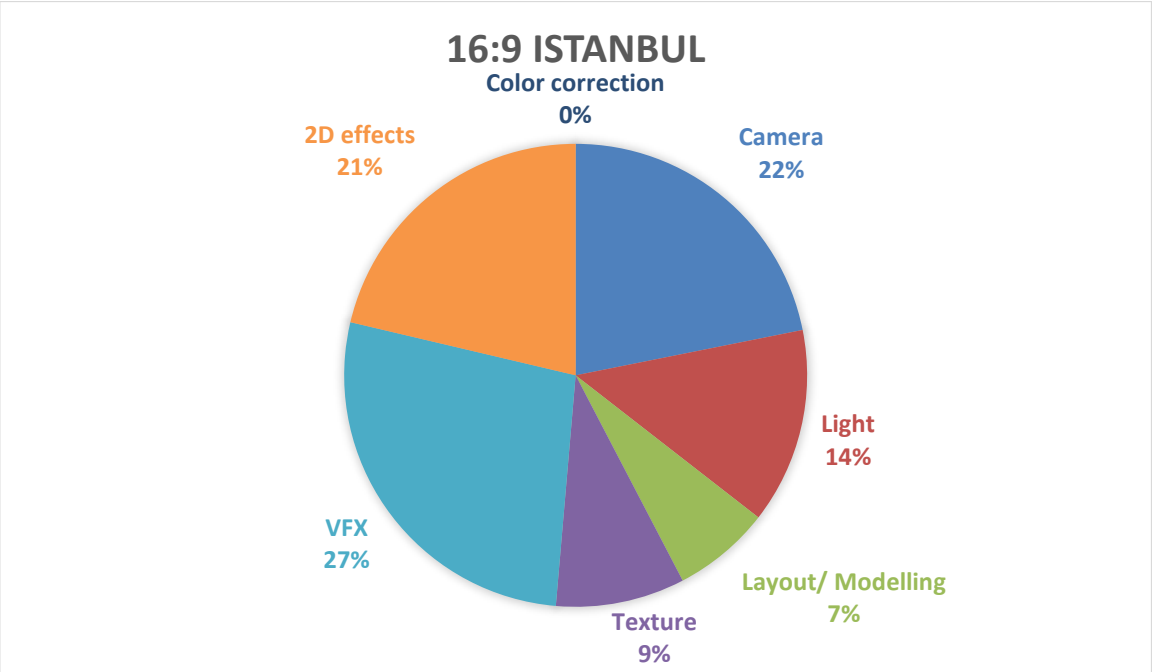


**Figure 3.46 :** Onalti dokuz manipulation.

### 3.2.3 Four winds istanbul

Four Winds project is established on an area of 44 decares in the goztepe area located in the district of kadikoy. It consists of green fields and recreation area approximately 20 decares, 8 decares of social activity area, and 4 buildings which have 44 floors above ground and with 3-4 floors underground parking place.Social club,some shops,swimming pool,fitness,spa,playground,residence facilities are all included.

The following video of animation was selected from the official vimeo account of tasyapi (Url-12).

**Figure 3.47 :** Four winds Istanbul.

CAMERA


**Figure 3.48 :** The context of the building in simulation compared to reality.

**Table 3.27 :** Four winds camera manipulation.

| | | YES | NO |
|---|---|---|---|
| Camera | Levitation | A fast zoom towards the building as an intro, which is an unobtainable height by human. | |
| | Lens | The perspective of the replaced simulated building has a different and more exaggerated perspective. | |
| | Sequence | | X |
| | Subject matter | | X |
| | POV | The houses located on the eastern front of the site of the building have been neglected. | |
| | Total | 3 | 2 |

LIGHTING

**Figure 3.49 :** Artificial lights.

**Table 3.28 :** Four winds light manipulation.

| | | YES | NO |
|---|---|---|---|
| Lighting | Natural | An unrealistic contrast and environment light has been added. | |
| | Artificial | Manipulation in last scene for on and off lights. | |
| | Total | 2 | 0 |

LAYOUT / MODELLING

**Figure 3.50 :** Four winds modelling comparision.

**Table 3.29 :** Four winds modelling manipulation.

| | | YES | NO |
|---|---|---|---|
| Layout/ Modelling | Ratio | | X |
| | Basic shape | | X |
| | Environment (Site) | | X |
| | Surrounding | | X |
| | Total | 0 | 4 |

TEXTURE

**Table 3.30 :** Four winds texture manipulation.

| | | YES | NO |
|---|---|---|---|
| Texture | Color | | X |
| | Material | | X |
| | Transparency | | X |
| | Total | 0 | 3 |

VFX

**Table 3.31 :** Four winds VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| VFX | Background objects in motion | Scenes of luxury personnel were embedded to the scenes. | |
| | Total | 1 | 0 |

2D VISUAL EFFECTS

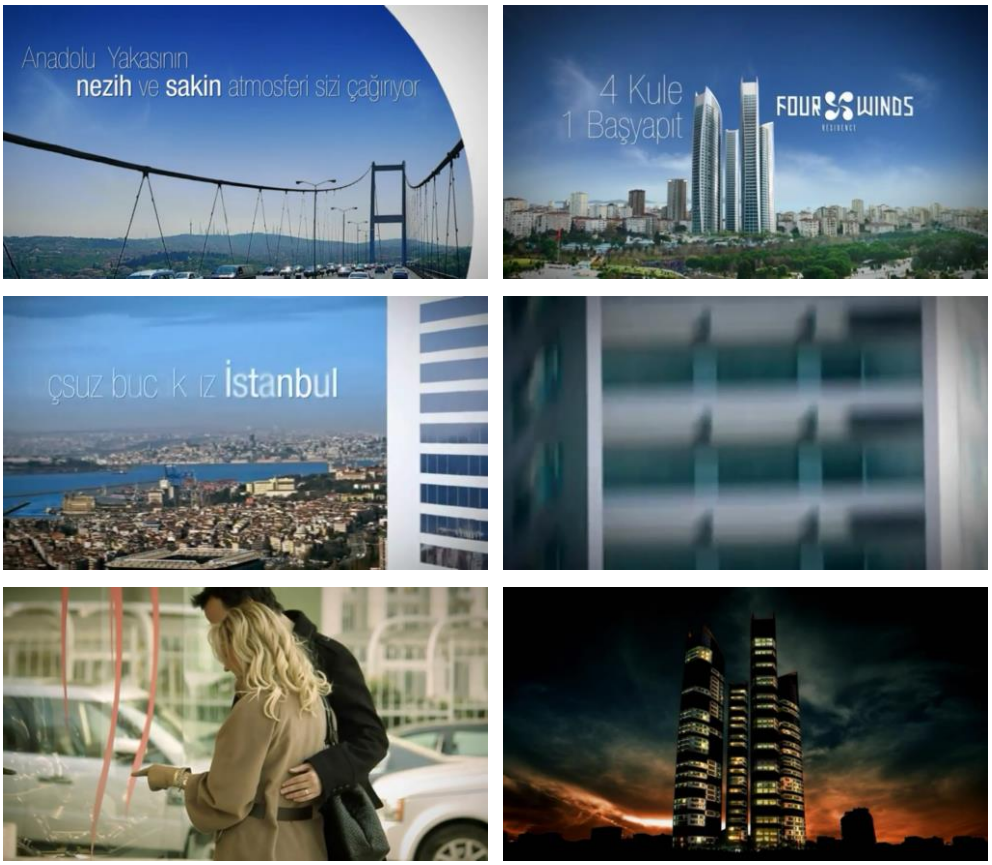


**Figure 3.51 :** Some of the effects used through out the simulated animation.

**Table 3.32 :** Four winds 2D VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| 2D Visual Effects | Text | Excessive use throughout the Movie | |
| | Blur & sharpness | -Was used in panning scene to emphasize height of building.<br>-Used in texts | |
| | Diffuse | In several scenes inside and outside. | |
| | Beams & Sparks | | X |
| | Climate conditions | Ideal Sunset. | |
| | Rotoscope & Keying | A simulation of the building was keyed into actual footage of the site. | |
| | Stylize effects | | X |
| | Transitional | Some transitional effects were added in the beginning of the film. | |
| | Extra scenes | In several parts, scenery from luxurious street life and high society was added. | |
| | Total | 7 | 2 |

COLOR CORRECTION

**Table 3.33 :** Four winds color manipulation.

| | | YES | NO |
|---|---|---|---|
| Color correction | Color filter | The final scene the contrast of the buildings have been increased to a maximum. | |
| | HDR | In the last scene of the animation a high definition range effect has been added. | |
| | Total | 2 | 0 |

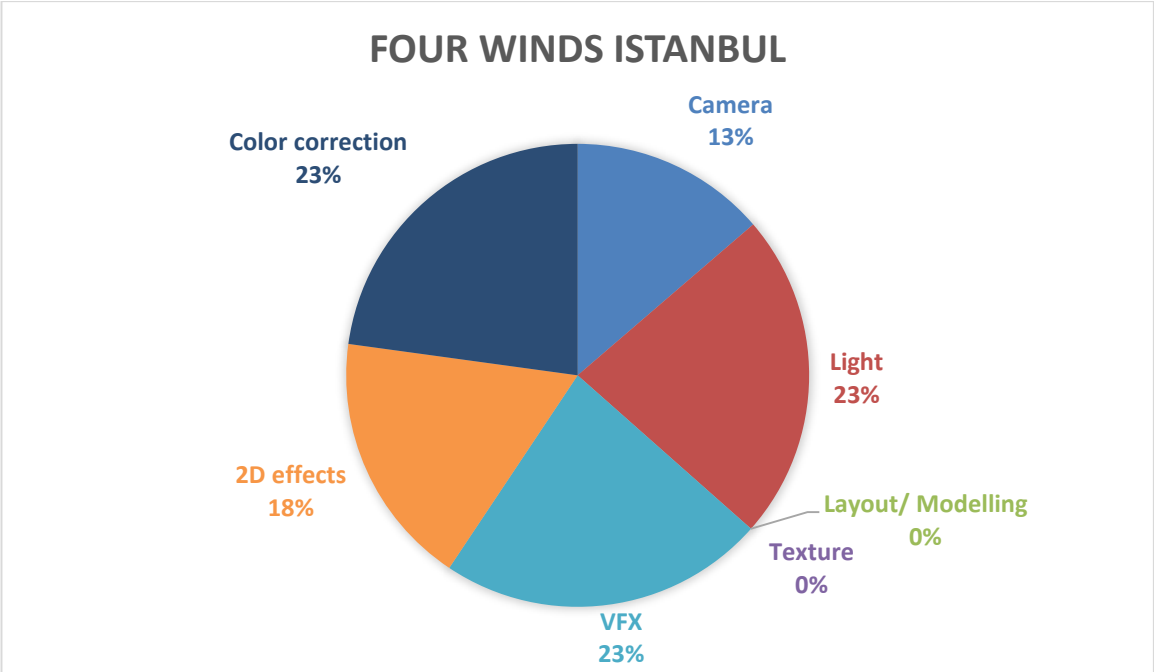


**Figure 3.52 :** Four winds manipulation.

### 3.2.4 Varyap Meridian

Varyap Meridian spreads across an area of 107,000 m2. 1500 Residence Units in 5 Towers 20 to 61 Floor, 20.000 sqm 3 Office Buildings, 50.000 sqm 5 Star Hotel & Congress Center, with total 410.000 sqm. of construction on the Asian side of Istanbul. The estimated cost of this project is $1,200,000,000 USD.

The project provides the flexibility to the customers to buy apartments changing from 40sqm to 150sqm, from studio to 5 bedrooms, similarly a commercial unit or office of 100sqm to 50.000sqm. The link of the advertisment is (Url-13).

CAMERA

**Figure 3.53 :** Varyap meridian camera context and the angle shown in the video.

**Table 3.34 :** Varyap meridian camera manipulation.

| | | YES | NO |
|---|---|---|---|
| Camera | Levitation | Ideal panning of camera and unobtainable by human height. | |
| | Lens | | X |
| | Sequence | | X |
| | Subject matter | | X |
| | POV | -Generally the buildings are shown from the below angle which makes an exaggerated view<br>-The surrounding of the perimeter is neglected | |
| | Total | 2 | 3 |

LIGHTING


**Figure 3.54 :** Excessive use of natural and unrealistic artificial lights.

**Table 3.35 :** Varyap meridian light manipulation.

| | | YES | NO |
|---|---|---|---|
| Lighting | Natural | Sunset light to emphasize on the color of the building | |
| | Artificial | -Merging golden glow to buildings actual light<br>-Reducing surrounding buildings lights | |
| | Total | 2 | 0 |

LAYOUT / MODELLING


**Figure 3.55 :** Varyap meridian modelling comparision.

**Table 3.36 :** Varyap meridian modelling manipulation.

| | | YES | NO |
|---|---|---|---|
| Layout/ Modelling | Ratio | | X |
| | Basic shape | | X |
| | Environment (Site) | | X |
| | Surrounding | | X |
| | Total | 0 | 4 |

TEXTURE

**Table 3.37 :** Varyap meridian texture manipulation.

| | | YES | NO |
|---|---|---|---|
| Texture | Color | | X |
| | Material | | X |
| | Transparency | | X |
| | Total | 0 | 3 |

VFX

**Table 3.38 :** Varyap meridian VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| VFX | Background objects in motion | | X |
| | Total | 0 | 1 |

2D VISUAL EFFECTS

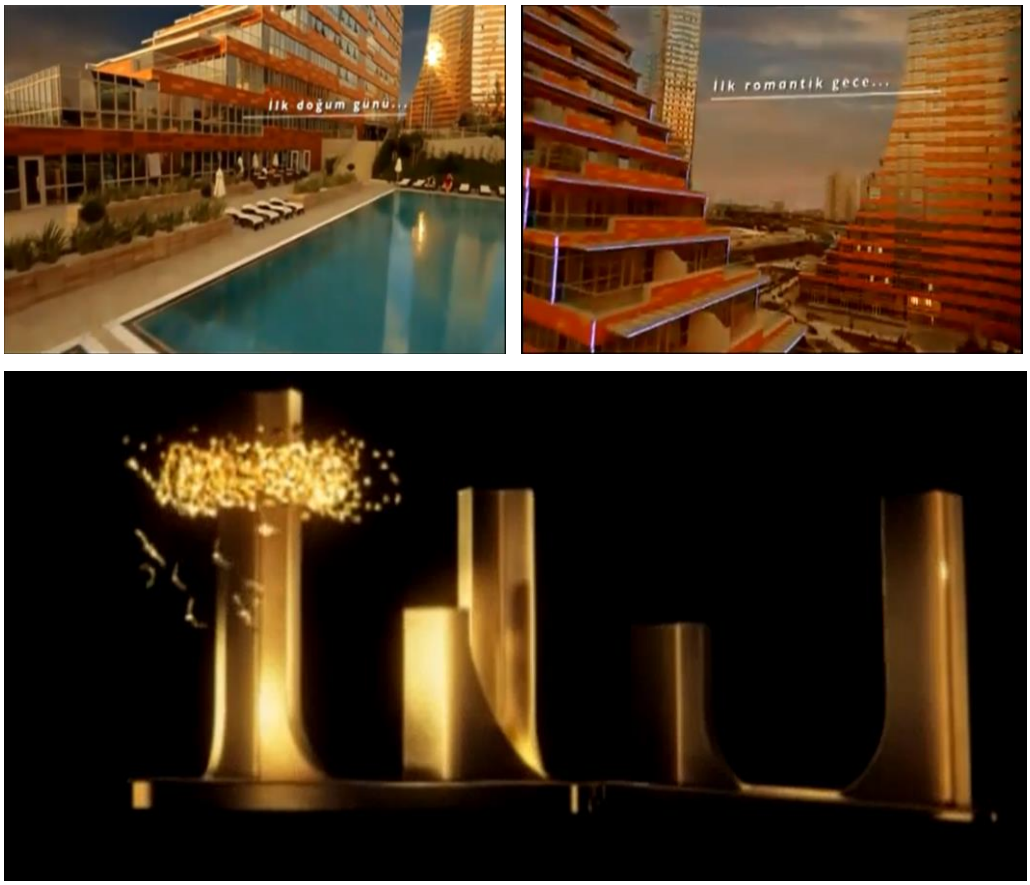


**Figure 3.56 :** Texts that were deceiving and the golden figure used in the animation.

**Table 3.39 :** Varyap meridian 2D VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| 2D Visual Effects | Text | Excessive use of emotionally stimulating words throughout the film | |
| | Blur & sharpness | | X |
| | Diffuse | | X |
| | Beams & Sparks | | X |
| | Climate conditions | Ideal orange Sunset. | |
| | Rotoscope & Keying | | X |
| | Stylize effects | | X |
| | Transitional | Transitions from the golden conceptual model to actual building | |
| | Extra scenes | The golden model in the beginning and ending scenes. | |
| | Total | 4 | 5 |

COLOR CORRECTION


**Figure 3.57 :** Orange / gold color correction.

**Table 3.40 :** Varyap meridian color manipulation.

| | | YES | NO |
|---|---|---|---|
| Color correction | Color filter | A gold color filter has been added. | |
| | HDR | | X |
| | Total | 1 | 1 |

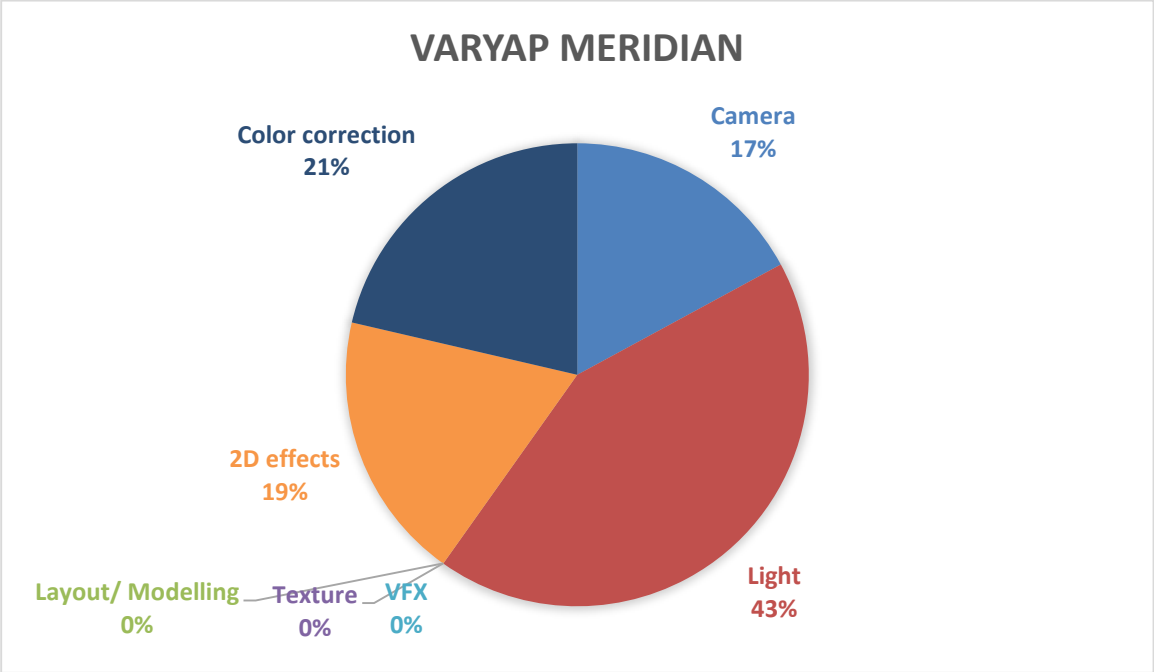


**Figure 3.58 :** Varyap meridian manipulation.

### 3.2.5 Mall of Istanbul

Mall of Istanbul is developed by Torunlar GYO, the biggest domestic Shopping Center investor of Turkey, with an investment of 1.3 billion TL.

Mall of İstanbul has 5 atria, three large and and two small, each with different concepts. With 83 escalators and 42 lifts, the mall provides its visitors with easy navigation and shopping opportunity with its large aisles.

It is located in the ikitelli area close to the ataturk airport.

**Figure 3.59 :** Mall of Istanbul.

**Figure 3.60 :** Mall of Istanbul 2.

CAMERA

**Figure 3.61 :** Different angles shown in the video.

**Table 3.41 :** Mall of Istanbul camera manipulation.

| | | YES | NO |
|---|---|---|---|
| Camera | Levitation | The height of the camera was not according to human scale and unobtainable positions were in set. | |
| | Lens | In some scenes wider lenses were used. | |
| | Sequence | The sequence of the video was not according to chronological order | |
| | Subject matter | | X |
| | POV | Views from the surrounding sites (mechanics) were generally neglected | |
| | Total | 4 | 1 |

LIGHTING

**Table 3.42 :** Mall of Istanbul light manipulation.

| | | YES | NO |
|---|---|---|---|
| Lighting | Natural | | X |
| | Artificial | An artificial light was added to the grid of the entrance glass. | |
| | Total | 1 | 1 |

LAYOUT / MODELLING

**Figure 3.62 :** Mall of Istanbul modelling comparision.

**Table 3.43 :** Mall of Istanbul modelling manipulation.

| | | YES | NO |
|---|---|---|---|
| Layout/ Modelling | Ratio | | X |
| | Basic shape | -A spherical spaceframe glass has been placed instead of a curved flat glass<br>-Some minor parts in the entrance were not according to reality | |
| | Environment (Site) | -An electric billboard with mall of Istanbul written on it.<br>-A non-existent tower is on the site | |
| | Surrounding | Trees have been simulated instead of buildings in some areas. | |
| | Total | 3 | 1 |

TEXTURE


**Figure 3.63 :** Glass color in simulation compared to reality.

**Table 3.44 :** Mall of Istanbul texture manipulation.

| | | YES | NO |
|---|---|---|---|
| Texture | Color | The color of some of the glasses were not complied | |
| | Material | -One of the blocks were completely transparent.<br>-The cell size in the simulations are not compatible with the actual material. | |
| | Transparency | Windows are more transparent and clear. | |
| | Total | 3 | 0 |

VFX

**Table 3.45 :** Mall of Istanbul VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| VFX | Background objects in motion | | X |
| | Total | 0 | 1 |

2D VISUAL EFFECTS


**Figure 3.64 :** Some 2D VFX manipulations such as the glowing block on the right.

**Table 3.46 :** Mall of Istanbul 2D VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| 2D Visual Effects | Text | | X |
| | Blur & sharpness | The background has been completely blurred out. | |
| | Diffuse | Diffuse glow was added in some scenes. | |
| | Beams & Sparks | On cars in motion. | |
| | Climate conditions | | X |
| | Rotoscope & Keying | Was used for human figures. | |
| | Stylize effects | | X |
| | Transitional | | X |
| | Extra scenes | | X |
| | Total | 4 | 5 |

COLOR CORRECTION

**Table 3.47 :** Mall of Istanbul color manipulation.

| | | YES | NO |
|---|---|---|---|
| Color correction | Color filter | | X |
| | HDR | | X |
| | Total | 0 | 2 |

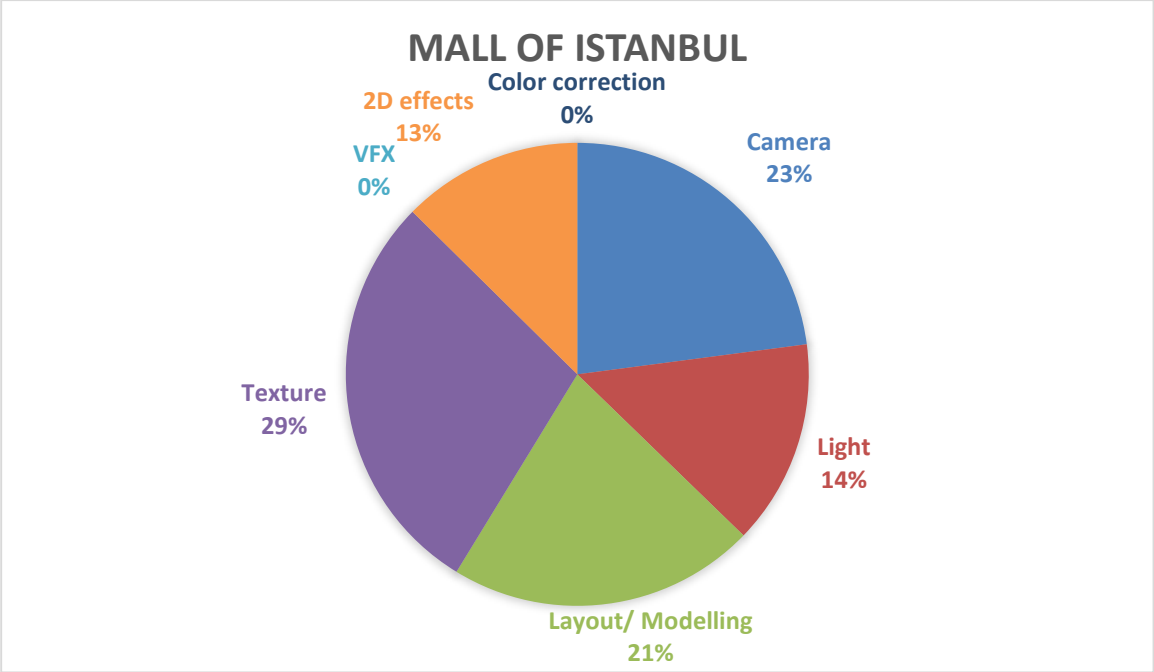


**Figure 3.65 :** Mall of Istanbul manipulation.

### 3.2.6 Dumankaya Ikon

Located on the asian side of istanbul, the 1000 unit residence was finished in 2012 by TAGO architects . It consists of 3 towers two of which are 41 and the other is 40 stories high. Reaching the sky at a height of 149 meters. The towers are linked by a communal observation terrace and garden at each of the 12th, 22nd and 32nd floors. The ground floor is designed for use as a shopping center. Overall, the building has a gross floor area of 151,000 square metres. The link of the simulated video is as mentioned in the refrences (Url-15).

**Figure 3.66 :** Dumankaya Ikon.

CAMERA

**Figure 3.67 :** Dumankaya Ikon camera lens comparision.

**Table 3.48 :** Dumankaya Ikon camera manipulation.

| | | YES | NO |
|---|---|---|---|
| Camera | Levitation | A spiral panning of the camera | |
| | Lens | Perspective correction lenses were used in some scenes. | |
| | Sequence | The sequence of the building was in a deceiving manner | |
| | Subject matter | Scenes of objects in the pool were on focus | |
| | POV | The surrounding of the perimeter is neglected | |
| | Total | 5 | 0 |

LIGHTING

**Table 3.49 :** Dumankaya Ikon light manipulation.

| | | YES | NO |
|---|---|---|---|
| Lighting | Natural | | X |
| | Artificial | | X |
| | Total | 0 | 2 |

LAYOUT / MODELLING

**Figure 3.68 :** The actual model of the Ikon.

**Table 3.50 :** Dumankaya Ikon modelling manipulation.

| | | YES | NO |
|---|---|---|---|
| Layout/ Modelling | Ratio | The ratio of the building and seems wider in reality | |
| | Basic shape | | X |
| | Environment (Site) | | X |
| | Surrounding | The neighboring buildings were replaced with trees | |
| | Total | 2 | 2 |

TEXTURE

**Figure 3.69 :** Dumankaya Ikon texture comparision.

**Table 3.51 :** Dumankaya Ikon texture manipulation.

| | | YES | NO |
|---|---|---|---|
| Texture | Color | The colors of the windows, platform, and other elements were not in accordance | |
| | Material | Some material such as the grass were used as plain surface | |
| | Transparency | The reflection of the mirrors were neglected | |
| | Total | 3 | 0 |

VFX

**Table 3.52 :** Dumankaya Ikon VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| VFX | Background objects in motion | | X |
| | Total | 0 | 1 |

2D VISUAL EFFECTS

**Figure 3.70 :** Keyed scenes and transtitional scenes.

**Table 3.53 :** Dumankaya Ikon 2D VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| 2D Visual Effects | Text | | X |
| | Blur & sharpness | | X |
| | Diffuse | | X |
| | Beams & Sparks | | X |
| | Climate conditions | | X |
| | Rotoscope & Keying | -The outside scene from the window was keyed to the windowframe.<br>-Human figues were keyed into the background | |
| | Stylize effects | | X |
| | Transitional | Transitions from night to day. | |
| | Extra scenes | Scenes of clouds in the beginning of the film. | |
| | Total | 3 | 6 |

COLOR CORRECTION

**Table 3.54 :** Dumankaya Ikon color manipulation.

| | | YES | NO |
|---|---|---|---|
| Color correction | Color filter | | X |
| | HDR | | X |
| | Total | 0 | 2 |

**Figure 3.71 :** Dumankaya Ikon color manipulation.

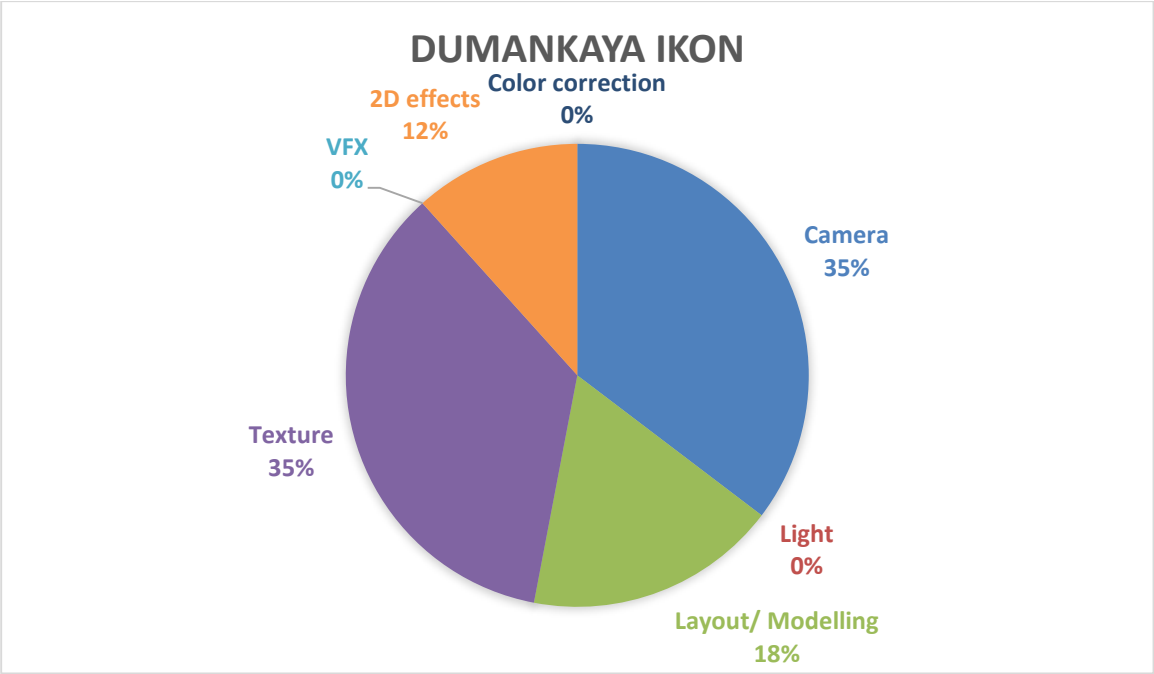


**Figure 3.72 :** Dumankaya Ikon manipulation.

### 3.2.7 Akasya

This commercial/ residential building is built on a land of 182,000 square meters on the asian side of istanbul in the Acibadem district. İt consists of residential towers of 36 and 39 stories high. The project is directly linked to the metro and metrobus line. The investor of this project is SAF GYO. link of the video (Url-16).


**Figure 3.73 :** Akasya camera manipulation.

CAMERA

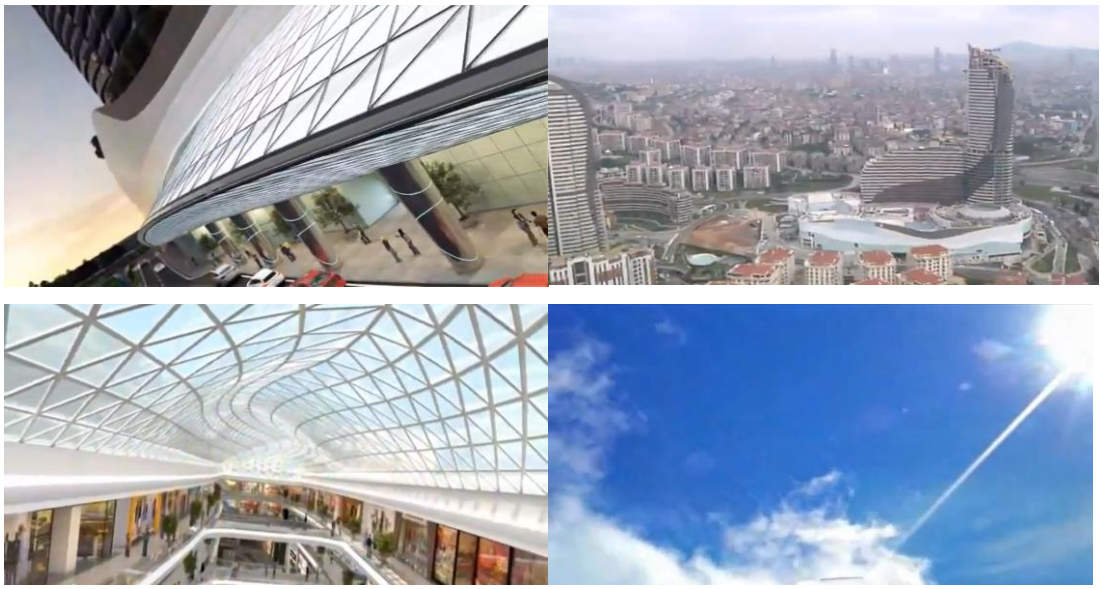

**Figure 3.74 :** Some views shown in the video and the real context of the building.

**Table 3.55 :** Akasya camera manipulation.

| | | YES | NO |
|---|---|---|---|
| Camera | Levitation | The height of the camera was not according to human scale and unobtainable positions were in set. | |
| | Lens | | X |
| | Sequence | | X |
| | Subject matter | Focus was on panels and sometimes on elements of buildings rather than the entirety of the building. | |
| | POV | A skyline angle of the Asian side was not shown. | |
| | Total | 3 | 2 |

LIGHTING

**Figure 3.75 :** Artificial light manipulation.

**Table 3.56 :** Akasya light manipulation.

| | | YES | NO |
|---|---|---|---|
| Lighting | Natural | | X |
| | Artificial | A spotlight outside of the mall was exaggerated | |
| | Total | 1 | 1 |

LAYOUT / MODELLING

**Figure 3.76 :** Akasya modelling comparison.

**Table 3.57 :** Akasya light manipulation.

| | | YES | NO |
|---|---|---|---|
| Layout/ Modelling | Ratio | | X |
| | Basic shape | | X |
| | Environment (Site) | | X |
| | Surrounding | | X |
| | Total | 0 | 4 |

TEXTURE

**Table 3.58 :** Akasya texture manipulation.

| | | YES | NO |
|---|---|---|---|
| Texture | Color | The color of the lower façade was white instead of light blue. | |
| | Material | | X |
| | Transparency | | X |
| | Total | 1 | 2 |

VFX


**Figure 3.77 :** Valets opening door cars.

**Table 3.59 :** Akasya VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| VFX | Background objects in motion | Scenes of luxury were added to the personal and vehicles such as valets opening cars etc. | |
| | Total | 1 | 0 |

2D VISUAL EFFECTS


**Figure 3.78 :** Beams and Stylized effects on the building.

**Table 3.60 :** Akasya 2D VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| 2D Visual Effects | Text | | X |
| | Blur & sharpness | Depth of field was added in the initial stages of the film. | |
| | Diffuse | Diffuse glow was added throughout the film. | |
| | Beams & Sparks | On logo on top of building. | |
| | Climate conditions | | X |
| | Rotoscope & Keying | Was used for human figures. | |
| | Stylize effects | A white vintage frame has been added in the beginning of the video | |
| | Transitional | | X |
| | Extra scenes | | X |
| | Total | 5 | 4 |

COLOR CORRECTION

**Table 3.61 :** Akasya color manipulation.

| | | YES | NO |
|---|---|---|---|
| Color correction | Color filter | | X |
| | HDR | | X |
| | Total | 0 | 2 |

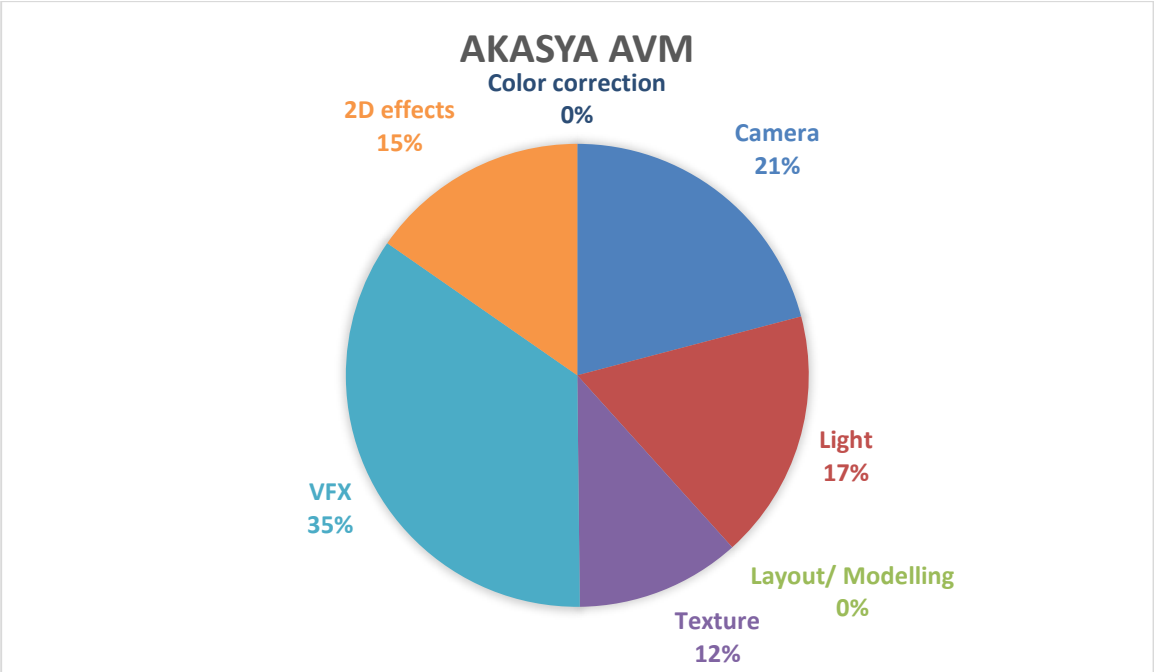


**Figure 3.79 :** Akasya manipulation.

### 3.2.8 Platform merter

Platform Merter is a multipurpose construction which consists of fashion parks, residencies, offices, spas and boutiqe hotels. It is built on a land of 35000 square meteres. The Platform merter was designed by DB Architects and invested by Eroglu holding. The following video was selected from the official vimeo account of Eroglu holdings (Url-17).

**Figure 3.80 :** Platfor merter.

CAMERA

**Figure 3.81 :** Some views shown in the video.

**Table 3.62 :** Merter platform camera manipulation.

| | | YES | NO |
|---|---|---|---|
| Camera | Levitation | Sudden zooms from angles above | |
| | Lens | | X |
| | Sequence | | X |
| | Subject matter | | X |
| | POV | Views from the surrounding sites were generally neglected | |
| | Total | 2 | 3 |

LIGHTING

**Figure 3.82 :** Light of the building in reality.

**Table 3.63 :** Merter platform light manipulation.

| | | YES | NO |
|---|---|---|---|
| Lighting | Natural | | X |
| | Artificial | | X |
| | Total | 0 | 2 |

LAYOUT / MODELLING


**Figure 3.83 :** Merter platform modelling comparision.

**Table 3.64 :** Merter platform modelling manipulation.

| | | YES | NO |
|---|---|---|---|
| Layout/ Modelling | Ratio | | X |
| | Basic shape | | X |
| | Environment (Site) | Some green partitions were not implied in the simulation | |
| | Surrounding | None of the surrounding constructions were shown | |
| | Total | 2 | 2 |

TEXTURE

**Figure 3.84 :** Texture of building in reality.

**Table 3.65 :** Merter platform texture manipulation.

| | | YES | NO |
|---|---|---|---|
| Texture | Color | The color of the platform and other sections did not comply | |
| | Material | The cell size of the tiles were not matched | |
| | Transparency | Windows are completely transparent and see-through. | |
| | Total | 3 | 0 |

VFX

**Table 3.66 :** Merter platform VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| VFX | Background objects in motion | | X |
| | Total | 0 | 1 |

2D VISUAL EFFECTS


**Figure 3.85 :** Titles used in the video.

**Table 3.67 :** Merter platform 2D VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| 2D Visual Effects | Text | Used as titles in the corner of the composition | |
| | Blur & sharpness | Caused by sudden zooms | |
| | Diffuse | | X |
| | Beams & Sparks | | X |
| | Climate conditions | | X |
| | Rotoscope & Keying | | X |
| | Stylize effects | | X |
| | Transitional | | X |
| | Extra scenes | | X |
| | Total | 2 | 7 |

COLOR CORRECTION

**Table 3.68 :** Merter platform color manipulation.

| | | YES | NO |
|---|---|---|---|
| Color correction | Color filter | | X |
| | HDR | | X |
| | Total | 0 | 2 |

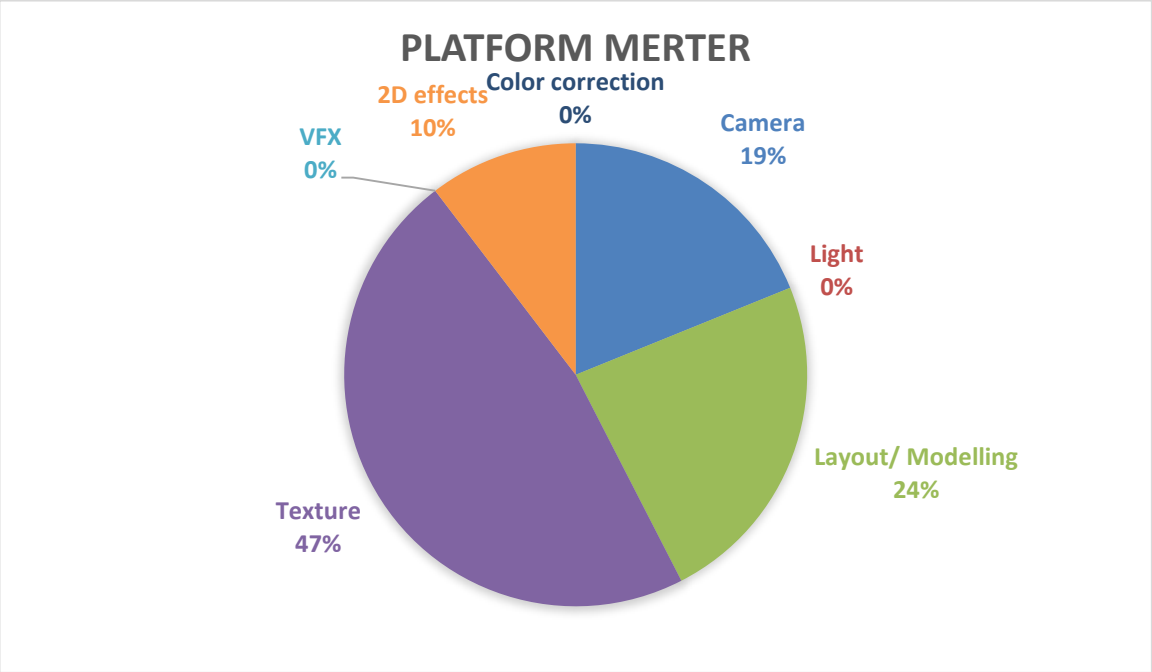


**Figure 3.86 :** Merter platform manipulation.

### 3.2.9 Viaport suites

VIA PORT Houses & Suites are constructed on a land of, 26,000 square meteres. And consists of 617 residencies. The project gives social sevices such as parks, fitness centers, Swimming pools, spas, restaurants etc. The animated link below was compared with the actual building (Url-18).

**Figure 3.87 :** Viaport suites.

CAMERA

**Figure 3.88 :** Angles shown in the video.

**Table 3.69 :** Viaport suites camera manipulation.

| | | YES | NO |
|---|---|---|---|
| Camera | Levitation | | X |
| | Lens | | X |
| | Sequence | | X |
| | Subject matter | | X |
| | POV | | X |
| | Total | 0 | 5 |

LIGHTING

**Figure 3.89 :** A sun element unrealisticly passes also nonexistent spot lights.

**Table 3.70 :** Viaport suites light manipulation.

| | | YES | NO |
|---|---|---|---|
| Lighting | Natural | A diagonal glare which is a representative of the sun passes in fast pace. | |
| | Artificial | Artificial color lights in the background of the building. | |
| | Total | 2 | 0 |

LAYOUT / MODELLING

**Figure 3.90 :** Viaport suites form comparision.

**Figure 3.91 :** Viaport suites simulated site.

**Table 3.71 :** Viaport suites modelling manipulation.

| | | YES | NO |
|---|---|---|---|
| Layout/ Modelling | Ratio | | X |
| | Basic shape | | X |
| | Environment (Site) | Fully grown trees were placed instead of saplings | |
| | Surrounding | | X |
| | Total | 1 | 3 |

TEXTURE

**Figure 3.92 :** Viaport suites texture comparision.

**Table 3.72 :** Viaport suites texture manipulation.

| | | YES | NO |
|---|---|---|---|
| Texture | Color | Generally the color of the building is more grey and white, compared to the reality which is more crème | |
| | Material | | X |
| | Transparency | The glass colors are shown grey and dark in the animation | |
| | Total | 2 | 1 |

VFX

**Figure 3.93 :** Manipulative scens of peoples and figures.

**Table 3.73 :** Viaport suites VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| VFX | Background objects in motion | Poolside scenes of high society people in leisure times. | |
| | Total | 1 | 0 |

2D VISUAL EFFECTS


**Figure 3.94 :** Beams, texts and transitions.

**Table 3.74 :** Viaport suites 2D VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| 2D Visual Effects | Text | Used in between scenes | |
| | Blur & sharpness | | X |
| | Diffuse | | X |
| | Beams & Sparks | Used in beginning of film. | |
| | Climate conditions | | X |
| | Rotoscope & Keying | | X |
| | Stylize effects | | X |
| | Transitional | Transitions from night to day. | |
| | Extra scenes | Scenes before animation. | |
| | Total | 4 | 5 |

COLOR CORRECTION

**Table 3.75 :** Viaport suites color manipulation.

| | | YES | NO |
|---|---|---|---|
| Color correction | Color filter | | X |
| | HDR | | X |
| | Total | 0 | 2 |

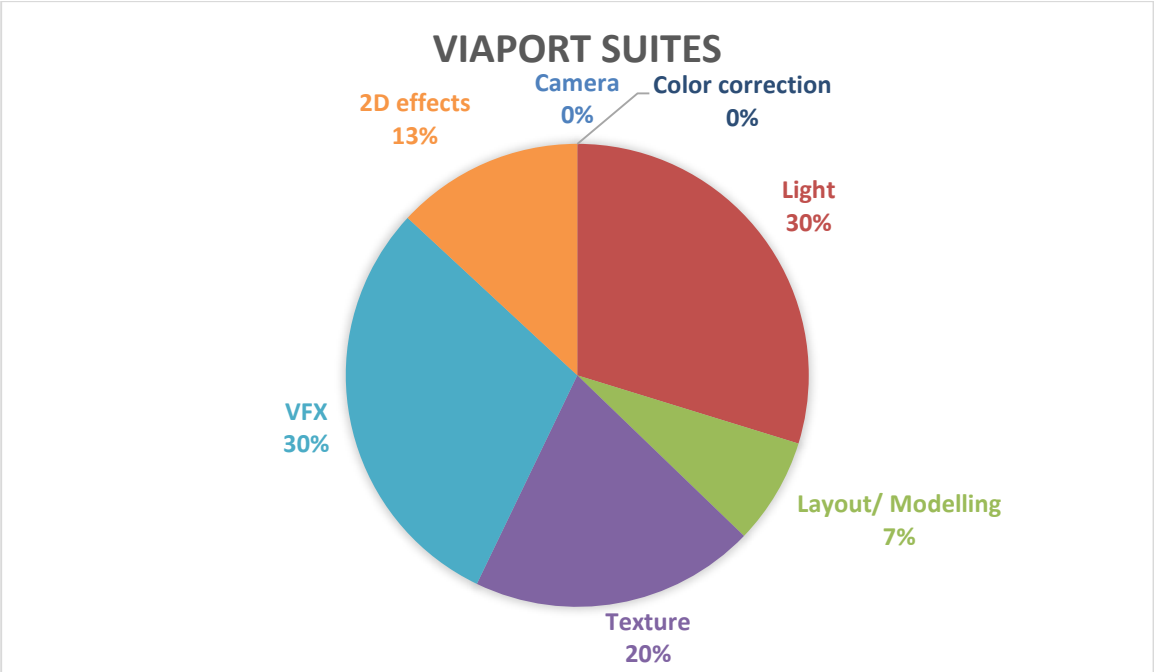


**Figure 3.95 :** Viaport suites manipulation.

### 3.2.10 The Istanbul Veliefendi

The Istanbul veliefendi is located in the Zeytunburnu veliefendi area with 15 blocks in two rows. 486 units are dwelled in this site.

The link below is the simulation of this site (Url-19).


**Figure 3.96 :** The Istanbul veliefendi.

CAMERA

**Figure 3.97 :** Scene of moving forward with unstandard lens.

**Table 3.76 :** The Istanbul veliefendi camera manipulation.

| | | YES | NO |
|---|---|---|---|
| Camera | Levitation | The height of the camera was not according to human scale and unobtainable positions were in set moving forward. | |
| | Lens | Unstandard lens in the beginning of the animation. | |
| | Sequence | Reoccurrence of scenes. | |
| | Subject matter | | X |
| | POV | | X |
| | Total | 3 | 2 |

LIGHTING

**Figure 3.98 :** Natural light comparision.

**Table 3.77 :** The Istanbul veliefendi light manipulation.

| | | YES | NO |
|---|---|---|---|
| Lighting | Natural | | X |
| | Artificial | | X |
| | Total | 0 | 2 |

LAYOUT / MODELLING

**Figure 3.99 :** The Istanbul veliefendi modelling comparision.

**Table 3.78 :** The Istanbul veliefendi modelling manipulation.

| | | YES | NO |
|---|---|---|---|
| Layout/ Modelling | Ratio | | X |
| | Basic shape | | X |
| | Environment (Site) | Some fountains, water elements, trees and other site elements have not yet been installed | |
| | Surrounding | | X |
| | Total | 1 | 3 |

TEXTURE

**Figure 3.100 :** Texture comparision.

**Table 3.79 :** The Istanbul veliefendi texture manipulation.

| | | YES | NO |
|---|---|---|---|
| Texture | Color | | X |
| | Material | The panels of the façade were not implied. | |
| | Transparency | | X |
| | Total | 1 | 2 |

VFX

**Figure 3.101 :** Use of peoples and vehicles throughout the video.

**Table 3.80 :** The Istanbul veliefendi VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| VFX | Background objects in motion | Scenes of luxury were added to the personal and vehicles. | |
| | Total | 1 | 0 |

2D VISUAL EFFECTS


**Figure 3.102 :** Keyed scenes and deceiving scenes of luxury.

**Table 3.81 :** The Istanbul veliefendi 2D VFX manipulation.

| | | YES | NO |
|---|---|---|---|
| 2D Visual Effects | Text | Used throughout the film | |
| | Blur & sharpness | | X |
| | Diffuse | | X |
| | Beams & Sparks | | X |
| | Climate conditions | | X |
| | Rotoscope & Keying | The entirety of the site was keyed into the location. | |
| | Stylize effects | | X |
| | Transitional | Some transitional effects were added | |
| | Extra scenes | Scenes of luxury and irrelevant scenes were included. | |
| | Total | 4 | 5 |

COLOR CORRECTION

**Table 3.82 :** The Istanbul veliefendi color manipulation.

| | | YES | NO |
|---|---|---|---|
| Color correction | Color filter | | X |
| | HDR | | X |
| | Total | 0 | 2 |

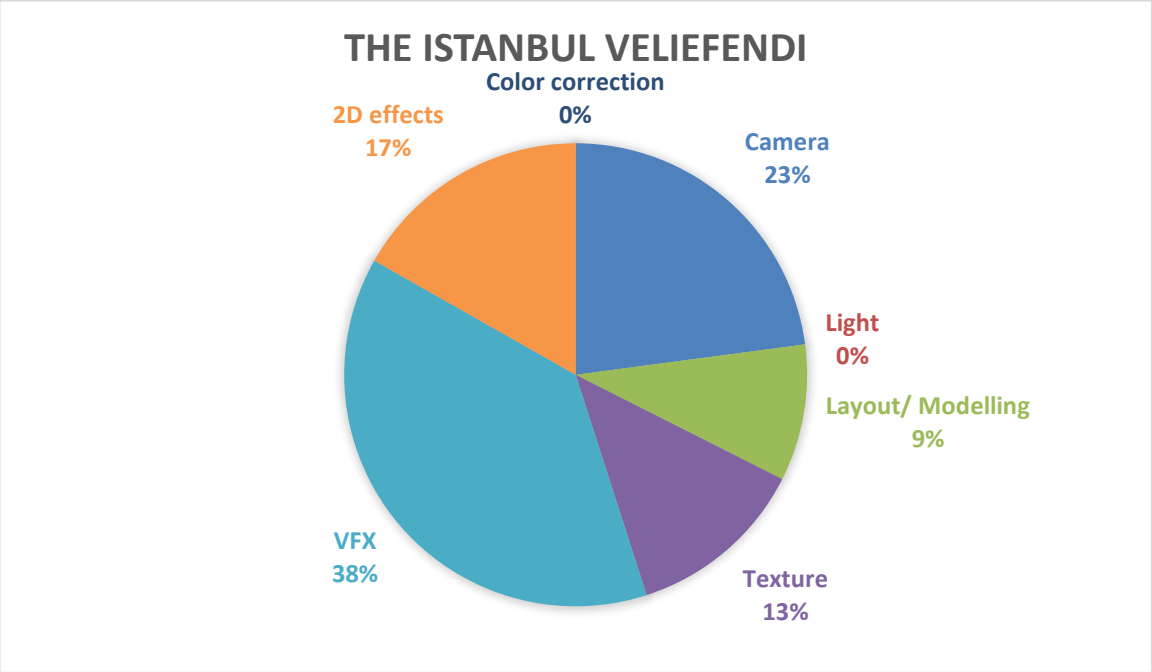


**Figure 3.103 :** The Istanbul veliefendi manipulation.

# 4. RESULTS AND DISCUSSION

## 4.1 Manipulative factors evaluation

Based on the information obtained from the examination above three charts will be presented. The first chart is a cumulative chart of manipulating factors, the percentage of each manipulative factor is the given data.

**Table 4.1 :** Cumulative table for categories

| | Camera | Light | Layout/ Modelling | Texture | VFX | 2D effect | Color correction |
|---|---|---|---|---|---|---|---|
| Zorlu Center | 17% | 14% | 14% | 10% | 29% | 16% | 0% |
| Onalti Dokuz | 22% | 14% | 7% | 9% | 27% | 21% | 0% |
| Four winds | 13% | 23% | 0% | 0% | 23% | 18% | 23% |
| Varyap Meridian | 17% | 43% | 0% | 0% | 0% | 19% | 21% |
| Mall of Istanbul | 23% | 14% | 21% | 29% | 0% | 13% | 0% |
| Dumankaya Ikon | 35% | 0% | 18% | 35% | 0% | 12% | 0% |
| Akasya | 21% | 17% | 0% | 12% | 35% | 15% | 0% |
| Platform merter | 19% | 0% | 24% | 47% | 0% | 10% | 0% |
| Viaport suites | 0% | 30% | 7% | 20% | 30% | 13% | 0% |
| The Istanbul Veliefendi | 23% | 0% | 9% | 13% | 38% | 17% | 0% |
| TOTAL (average) | 19% | 16% | 10% | 18% | 18% | 15% | 4% |
| TOTAL (median) | 20% | 14% | 8% | 13% | 25% | 16% | 0% |

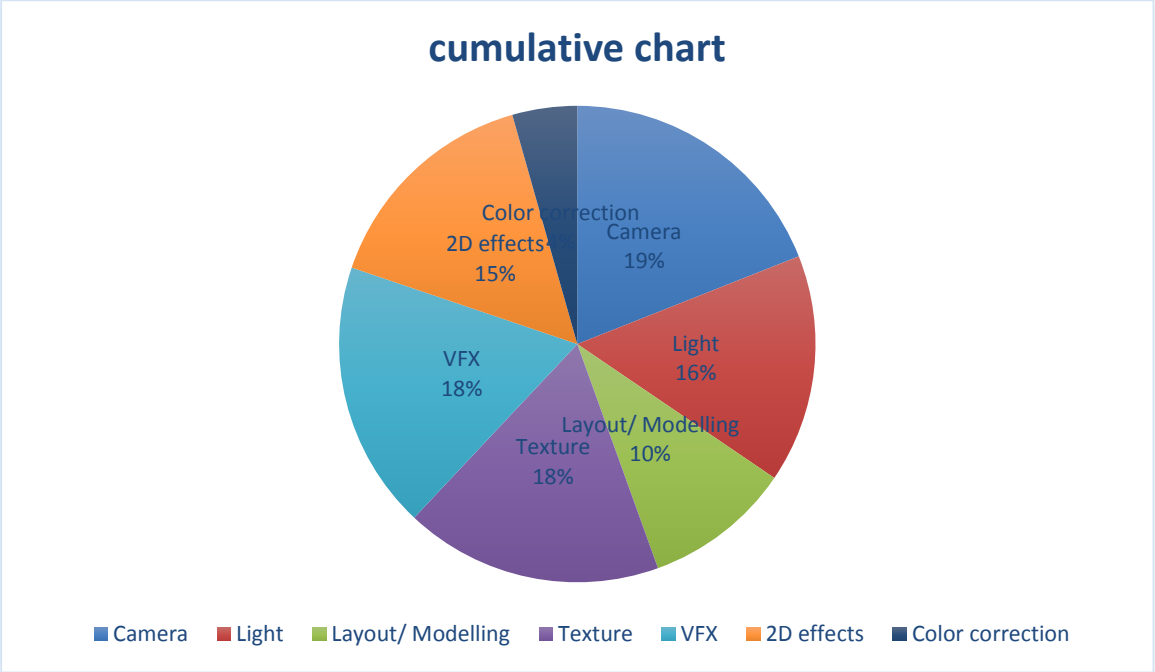


**Figure 4.1 :** Cumulative chart for categories

### 4.2 Buildings evaluation

2 charts are presented based on the number of manipulations done, the first one is the result of the manipulations without a coefficient factor, and in the second one these factors have been implied based on the importance of the subfactors.

This chart is a cumulative chart of manipulating factors based on numbers of yeses, to show the number of manipulations in all of the buildings simultaneously.

**Table 4.2 :** Cumulative table for buildings excluding coefficients

| | Camera | Light | Layout/Modelling | Texture | VFX | 2D effect | Color correction | TOTAL YES |
|---|---|---|---|---|---|---|---|---|
| Zorlu Center | 3 | 1 | 2 | 1 | 1 | 4 | 0 | 12 |
| Onalti Dokuz | 4 | 1 | 1 | 1 | 1 | 7 | 0 | 15 |
| Four winds | 3 | 2 | 0 | 0 | 1 | 7 | 2 | 15 |
| Varyap Meridian | 2 | 2 | 0 | 0 | 0 | 4 | 1 | 9 |
| Mall of Istanbul | 4 | 1 | 3 | 3 | 0 | 4 | 0 | 15 |
| Dumankaya Ikon | 5 | 0 | 2 | 2 | 0 | 3 | 0 | 12 |
| Akasya | 3 | 1 | 0 | 1 | 1 | 5 | 0 | 11 |
| Platform merter | 2 | 0 | 2 | 3 | 0 | 2 | 0 | 9 |
| Viaport suites | 0 | 2 | 1 | 2 | 1 | 4 | 0 | 9 |
| The Istanbul Veliefendi | 3 | 0 | 1 | 1 | 1 | 4 | 0 | 10 |

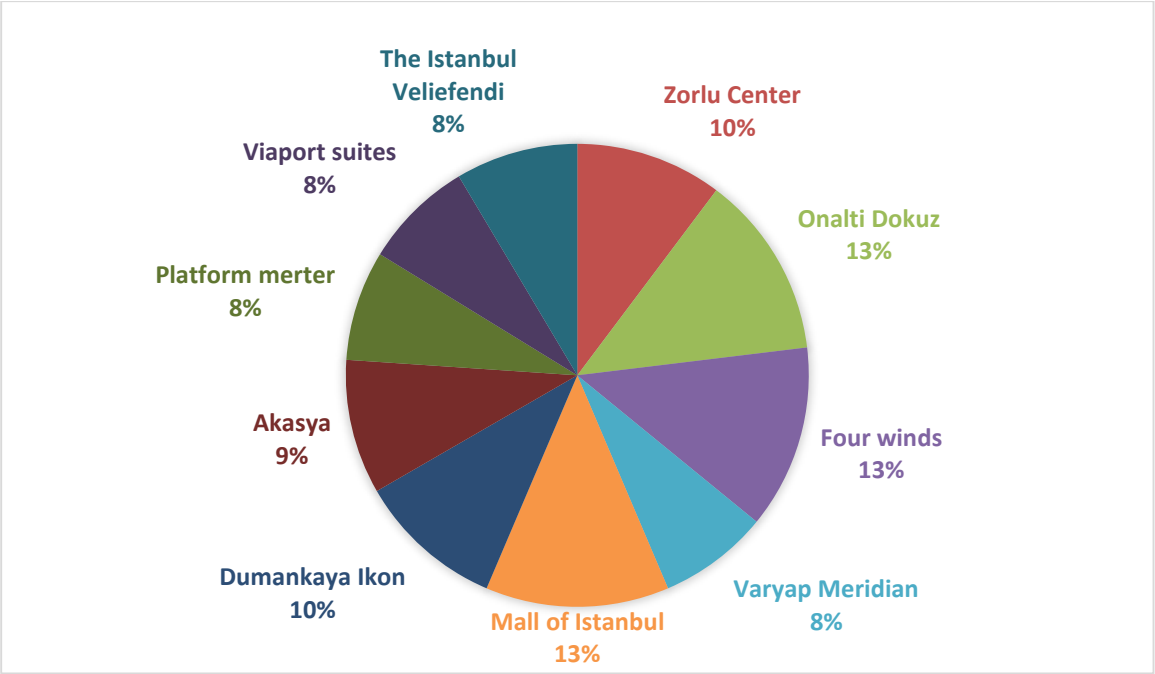


**Figure 4.2 :** Cumulative chart for buildings excluding coefficients

### 4.3 Holistic evaluation

This is a generic chart to show all the buildings with the coefficient multipliciations of value implied.

**Table 4.3 :** Cumulative table for buildings including coefficients

| | | Camera | | | | | Light | | Layout/Modelling | | | | Texture | | | VFX | 2D effect | | | | | | | | | Color correction | | TOTAL | TOTAL WITH COEFFICIENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Levitation | Lens | Sequence | Subject matter | POV | Natural | Artificial | Ratio | Basic Shape | Environment (site) | Surrounding | Color | Material | Transperancy | Background objects | Text | Blur & sharpness | Diffuse | Beams & Sparks | Climate conditions | Rotoscope & Keying | Stylize effects | Transitional | Extra scenes | Color filter | HDR | YES | |
| | | X1 | X1 | X2 | X4 | X4 | X2 | X2 | X4 | X4 | X4 | X4 | X3 | X4 | X4 | X1 | X3 | X3 | X3 | X3 | X3 | X3 | X3 | X3 | X3 | X3 | X3 | | |
| | Zorlu Center | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 12 | 34 |
| | Onalti Dokuz | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 15 | 43 |
| | Four winds | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 15 | 38 |
| | Varyap Meridian | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 9 | 24 |
| | Mall of Istanbul | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 15 | 45 |
| | Dumankaya Ikon | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 12 | 40 |
| | Akasya | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 11 | 30 |
| | Platform merter | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 30 |
| | Viaport suites | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 9 | 28 |
| | The Istanbul Veliefendi | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 10 | 25 |

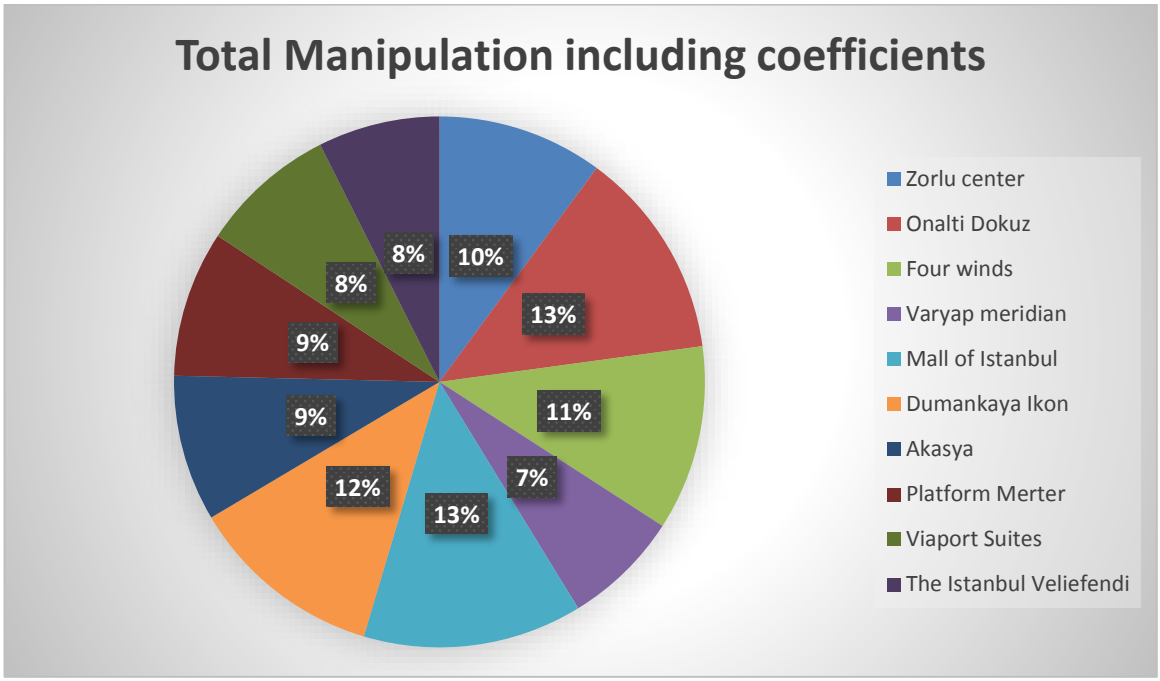


**Figure 4.3 :** Cumulative chart for buildings including coefficients

### 4.4 Conclusion and discussion

According to the individual analysis of each of the buildings some of the cliché deceptions are identified which can be seen in the majority of animations such as concealing the buildings surroundings, beams of car lights taken in high exposure photos at night, beautiful women as presenters, extravagant unexistant vegetation, luxurious lives, scenes of sunset and perfect vanilla skies as the background condition which the building is presented. Some of these “perfect scenes” seem universaly accepted in the eye of masses and are somehow more of a common sense and standard definition of an image of a building in perfect conditions, which, when recognized can be exploited by aesthetic designers. Deviating via aesthetic and presenting strategies manipulate spectators and forces them to be unable to decide clearly, but construction related deviations could be more harmful due to the false information in gives to spectators. Several examples of this deviation could be seen in the projects such as the mall of Istanbul.

Some factors were more sensible in a qualitative manner for example the diffuse effect in the onaltidokuz residence was more effective and had a longer duration throughout the animation, in comparision with the Akasya shopping malls animation; or the accordance of the natural light source and the shadows in the Zorlu center buildings. On the other hand neglecting some factors in deviation were more important than others, such as the context of the building in the fourwinds .

Except a few very rare exceptions such as The Merter platform animation, a professional firm would always try to show its building in the most perfect and flawless conditions, in a manner that stimulates the emotions of a spectator. A sense of greed might be putting this to an extreme to which the results of the study showed buildings such as Four winds Istanbul, Onalti dokuz and The mall of Istanbul had the most deceiving animations. Because of the role the camera plays as a narrative, the most deceiving points were related to those of the camera. For this purpose human scale, flexable and interractive applications such as walkthrough cyber-spaces, which some building websites are already using are suggested. The least manipulative factor was related to color correction. Although color filters can be used to manipulate moods such as in the Varyap meridian which was one of the buildings with the least deceiving points, the orange theme of the video had more emphasis on the colors of the building. No matter what, a considerable amount of manipulation is done by an animator to show its effort, but lowering these factors could be benificial for the client and reduce criticism of buildings which are constructed solely because of perfectly manipulating the spectators.

Althought the study gives a holistic and general idea for analyzing architectural animations but a more detailed, sophisticated analysis system can be developed which makes the level of devation more understandable, and the study can expand more soley focusing on architecture and softwares that are used for making architectural simulations.

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